

AGENDA

**CITY COUNCIL OF THE CITY OF MORENO VALLEY
MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY AS SUCCESSOR AGENCY FOR THE
COMMUNITY REDEVELOPMENT AGENCY OF
THE CITY OF MORENO VALLEY
MORENO VALLEY HOUSING AUTHORITY
MORENO VALLEY PUBLIC FINANCING AUTHORITY
BOARD OF LIBRARY TRUSTEES**

December 5, 2023

REGULAR MEETING – 6:00 PM

City Council Study Sessions

Second Tuesday of each month – 6:00 p.m.

City Council Meetings

Special Presentations – 5:30 P.M.

First & Third Tuesday of each month – 6:00 p.m.

City Council Closed Sessions

Scheduled as needed at 4:30 p.m. or thereafter

City Hall Council Chamber – 14177 Frederick Street

Upon request, this agenda will be made available in appropriate alternative formats to persons with disabilities, in compliance with the Americans with Disabilities Act of 1990. Any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to the ADA Coordinator, at 951.413.3350 at least 72 hours before the meeting. The 72-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

Ulises Cabrera, Mayor

Edward A. Delgado, Mayor Pro Tem

David Marquez, Council Member

Cheylynda Barnard, Council Member

Elena Baca-Santa Cruz, Council Member

AGENDA
CITY COUNCIL OF THE CITY OF MORENO VALLEY
December 5, 2023

CALL TO ORDER - 5:30 PM

SPECIAL PRESENTATIONS

1. RECOGNIZING SOUTHWEST CARPENTERS UNION FOR
CONSTRUCTING LITTLE FREE LIBRARIES
2. RECOGNIZING CLASSIFIED EMPLOYEE & DEPUTY OF THE 3RD
QUARTER

**AGENDA
JOINT MEETING OF THE
CITY COUNCIL OF THE CITY OF MORENO VALLEY
MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY AS SUCCESSOR AGENCY FOR THE
COMMUNITY REDEVELOPMENT AGENCY OF THE
CITY OF MORENO VALLEY
MORENO VALLEY HOUSING AUTHORITY
MORENO VALLEY PUBLIC FINANCING AUTHORITY
BOARD OF LIBRARY TRUSTEES
AND
MORENO VALLEY COMMUNITY FOUNDATION BOARD**

***THE CITY COUNCIL RECEIVES A SEPARATE STIPEND FOR CSD
MEETINGS***

**REGULAR MEETING – 6:00 PM
DECEMBER 5, 2023**

CALL TO ORDER

Joint Meeting of the City Council, Community Services District, City as Successor Agency for the Community Redevelopment Agency, Housing Authority and the Board of Library Trustees - actions taken at the Joint Meeting are those of the Agency indicated on each Agenda item.

PLEDGE OF ALLEGIANCE

INVOCATION - DR. DALE LACQUEMENT FROM FAITH SOUTHERN BAPTIST CHURCH

ROLL CALL

INTRODUCTIONS

**PUBLIC COMMENTS ON ANY SUBJECT NOT ON THE AGENDA UNDER THE
JURISDICTION OF THE CITY COUNCIL**

**PUBLIC COMMENTS ON ANY SUBJECT ON THE AGENDA UNDER THE
JURISDICTION OF THE CITY COUNCIL**

JOINT CONSENT CALENDARS (SECTIONS A-E)

All items listed under the Consent Calendars, Sections A, B, C, D, and E are considered to be routine and non-controversial and may be enacted by one motion unless a member of the City Council, Community Services District, City as Successor Agency for the Community Redevelopment Agency, Housing Authority or the Board of Library Trustees requests that an item be removed for separate action. The motion to adopt the Consent Calendars is deemed to be a separate motion by each Agency and shall be so recorded by the City Clerk. Items withdrawn for report or discussion will be heard after public hearing items.

A. CONSENT CALENDAR-CITY COUNCIL

- A.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- A.2. MINUTES - CITY COUNCIL - CLOSED SESSION – NOVEMBER 21, 2023
5:00 PM

Recommendation:

1. Approve as submitted.

- A.3. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 21, 2023
6:00 PM.

Recommendation:

1. Approve as submitted.

- A.4. PAYMENT REGISTER - OCTOBER 2023 (Report of: Financial & Management Services)

Recommendation:

1. Receive and file the Payment Register.

- A.5. RESOLUTION OF THE CITY OF MORENO VALLEY SERVING AS THE SUCCESSOR AGENCY TO THE COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF MORENO VALLEY APPROVING THE RECOGNIZED OBLIGATION PAYMENT SCHEDULE AND ADMINISTRATIVE BUDGET FOR THE PERIOD OF JULY 1, 2024 THROUGH JUNE 30, 2025 (ROPS 24-25) (RESO. NO. SA 2023-XX) (Report of: Financial & Management Services)

Recommendations: That the City Council as Successor Agency:

1. Adopt Resolution No. SA 2023-XX. A Resolution of the City Council of the City of Moreno Valley, California, serving as Successor Agency to the Community Redevelopment Agency of the City of Moreno Valley Approving the Recognized Obligation Payment Schedule and Administrative Budget for the Period of July 1, 2024 through June 30, 2025 (ROPS 24-25) and Authorizing the City Manager acting for the Successor Agency or his/her Designee to Make Modifications Thereto; and
2. Authorize the City Manager acting for the Successor Agency or his Designee to make modifications to the Schedule; and

3. Authorize the transmittal of the ROPS 24-25, for the period of July 1, 2024 through June 30, 2025 (“Exhibit A”), including Administrative Budget (“Exhibit B”) for the said period, to the Countywide Oversight Board for County of Riverside for review and approval.

- A.6. SECOND READING AND ADOPTION OF ORDINANCE NO. 1004, AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, LEVYING A SPECIAL TAX IN CONNECTION WITH COMMUNITY FACILITIES DISTRICT NO. 2023-01 (PUBLIC SAFETY SERVICES) AND TAKING CERTAIN RELATED ACTIONS (Report of: Financial & Management Services)

Recommendation:

1. Conduct the second reading by title only and adopt Ordinance No. 1004.

- A.7. ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND AMONG PASSCO PACIFICA LLC, MORENO VALLEY UNIFIED SCHOOL DISTRICT, AND THE CITY OF MORENO VALLEY RELATING TO MORENO VALLEY UNIFIED SCHOOL DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2023-4 (RESO. NO. 2023-XX) (Report of: Financial & Management Services)

Recommendation:

1. Adopt Resolution No. 2023-XX, a Resolution Approving the Joint Community Facilities Agreement between Passco Pacifica, LLC, Moreno Valley Unified School District, and City of Moreno Valley, in substantially the form attached hereto with modifications subject to City Attorney approval and authorize the City Manager to execute the Agreement and related documents.

- A.8. ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND AMONG D.R. HORTON LOS ANGELES HOLDING COMPANY, INC., MORENO VALLEY UNIFIED SCHOOL DISTRICT, AND THE CITY OF MORENO VALLEY RELATING TO MORENO VALLEY UNIFIED SCHOOL DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2023-3 (RESO. NO. 2023-XX) (Report of: Financial & Management Services)

Recommendation:

1. Adopt Resolution No. 2023-XX, a Resolution Approving the Joint Community Facilities Agreement between D.R. Horton Los Angeles Holding Company, Inc., Moreno Valley Unified School District, and City of Moreno Valley, in substantially the form attached hereto with modifications subject to City Attorney approval, and authorize the City Manager to execute the Agreement and related documents.

B. CONSENT CALENDAR-COMMUNITY SERVICES DISTRICT

- B.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- B.2. MINUTES - CITY COUNCIL - CLOSED SESSION - NOVEMBER 21, 2023 5:00 PM.

Recommendation:

1. Approve as submitted.

- B.3. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 21, 2023 6:00 PM.

Recommendation:

1. Approve as submitted.

- B.4. PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN PARCELS INTO COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) - AMENDMENT NOS. 126, 129 and 131 (RESO. NOS. CSD 2023-___ , CSD 2023-___, and CSD 2023-___) (Report of: Financial & Management Services)

Recommendation:

1. Adopt Resolution No. CSD 2023-___, a Resolution of the Board for the Moreno Valley Community Services District of the City of Moreno Valley, California, ordering the annexation of territory to City of Moreno Valley Community Facilities District No. 2021-01 (Parks Maintenance) and approving the amended map for said District (Amendment No. 126) (Ruben V. Marquez, located at 14191 Travers Dr.).
2. Adopt Resolution No. CSD 2023-___, a Resolution of the Board for the Moreno Valley Community Services District of the City of Moreno Valley, California, ordering the annexation of territory to City of Moreno Valley Community Facilities District No. 2021-01 (Parks Maintenance) and approving the amended map for said District (Amendment No. 129) (Leticia Llamas, Sergio Llamas and Martin Castro Cazarez, located at 14755 Silvertree Rd.).
3. Adopt Resolution No. CSD 2023-___, a Resolution of the Board for the Moreno Valley Community Services District of the City of Moreno Valley, California, ordering the annexation of territory to City of Moreno Valley Community Facilities District No. 2021-01 (Parks Maintenance) and approving the amended map for said District (Amendment No.

131) (24291 Bairndale Drive Land Trust and Brock Christopher Bagley, located at 24291 and 24295 Bairndale Dr.).

C. CONSENT CALENDAR - HOUSING AUTHORITY

- C.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- C.2. MINUTES - CITY COUNCIL - CLOSED SESSION - NOVEMBER 21, 2023
5:00 PM.

Recommendation:

1. Approve as submitted.

- C.3. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 21, 2023
6:00 PM.

Recommendation:

1. Approve as submitted.

D. CONSENT CALENDAR - BOARD OF LIBRARY TRUSTEES

- D.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- D.2. MINUTES - CITY COUNCIL - CLOSED SESSION - NOVEMBER 21, 2023
5:00 PM.

Recommendation:

1. Approve as submitted.

- D.3. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 21, 2023
6:00 PM.

Recommendation:

1. Approve as submitted.

E. CONSENT CALENDAR - PUBLIC FINANCING AUTHORITY

- E.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- E.2. MINUTES - CITY COUNCIL - CLOSED SESSION -NOVEMBER 21, 2023 5:00 PM.

Recommendation:

1. Approve as submitted.

- E.3. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 21, 2023 6:00 PM.

Recommendation:

1. Approve as submitted.

F. PUBLIC HEARINGS

Questions or comments from the public on a Public Hearing matter are limited to five minutes per individual and must pertain to the subject under consideration.

Those wishing to speak should complete and submit a GOLDENROD speaker slip to the Sergeant-at-Arms.

- F.1. GATEWAY HEIGHTS 108 UNIT CONDOMINIUM PROJECT (Report of: Community Development)

Recommendations: That the City Council:

1. **ADOPT** Resolution 2023-XX:
 1. **CERTIFYING** the Initial Study/Mitigated Negative Declaration prepared for the Proposed Project consisting of General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096), Tentative Tract Map 38459 (PEN22-0127) and Conditional Use Permit (PEN21-0066); and
 2. **ADOPTING** the Mitigation Monitoring and Reporting Program prepared for the Mitigated Negative Declaration; and
2. **ADOPT** Resolution 2023-XX:
 1. **APPROVING** General Plan Amendment (PEN20-0095), Tentative Tract Map 38459 (PEN22-0127) and Conditional Use Permit (PEN21-0066); and

3. **INTRODUCE** Ordinance No. [next in order]:

1. Approving a Change of Zone (PEN20-0096) and corresponding amendment to the City's Zoning Atlas.

F.2. REQUEST FOR TEMPORARY CLOSURE OF GRANDE VISTA DRIVE
(Report of: Public Works)

Recommendation:

1. Conduct a public hearing to adopt Resolution No. 2023-XX approving the temporary closure of Grande Vista Drive south of Bonita Heights

F.3. MUNICIPAL CODE AMENDMENT AMENDING CHAPTER 9.02 (PERMITS AND APPROVALS), CHAPTER 9.03 (RESIDENTIAL DISTRICTS), CHAPTER 9.05 (INDUSTRIAL DISTRICTS), CHAPTER 9.14 (LAND DIVISIONS), AND CHAPTER 9.16 (DESIGN GUIDELINES) OF TITLE 9 (PLANNING AND ZONING) (Report of: Community Development)

Recommendation: That the City Council:

1. **CONDUCT** the First Reading of Ordinance No. XXXX and Introduce the Ordinance amending Sections 9.02.020, 9.03.040, 9.03.055, 9.03.070, 9.03.080, 9.05.040, 9.14.100, and 9.09.170 of Title 9 of the Moreno Valley Municipal Code to provide updates consistent with new State Law and Housing and Community Development (HCD) requirements, streamline Code requirements to provide flexibility and clarity regarding existing requirements, and provide for other minor clarifications and clean-up items.

F.4. PUBLIC HEARING FOR THE ANNUAL ACTION PLAN FOR PROGRAM YEAR 2024-2025 AND TO ADOPT 2024-2025 OBJECTIVES AND POLICIES
(Report of: City Manager)

Recommendations: That the City Council:

1. Conduct a Public Hearing to allow for the public to comment on the needs of low- and moderate-income residents in Moreno Valley.
2. Approve the proposed CDBG, HOME, and ESG Grant Objectives and Policies for the 2024-2025 Program Year.

G. ITEMS REMOVED FROM CONSENT CALENDARS FOR DISCUSSION OR SEPARATE ACTION

H. GENERAL BUSINESS

H.1. CITY COUNCIL REORGANIZATION - SELECTION OF MAYOR PRO TEM
(Report of: City Clerk)

Recommendation:

1. Conduct the reorganization of the City Council by selecting one Council Member to serve a one-year term as Mayor Pro Tem.

H.2. REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –ANTONIO MARTINEZ MAIN LIBRARY MURAL
(Report by: Parks & Community Services)

Recommendations: That the City Council:

1. Receive and file the artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Antonio Martinez for the creation and installation of a 260 square foot mural at the Main Library; and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

H.3. REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –ALEXANDRA GARCIA GATEWAY PARK RESTROOM MURAL (Report by: Parks & Community Services)

Recommendations: That the City Council:

1. Receive and file artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Alexandra Garcia for the creation and installation of a 732 square foot mural at the Gateway Park Restroom; and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

H.4. REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –PATRICK BARWINSKI CRC MURAL (Report by: Parks & Community Services)

Recommendations: That the City Council:

1. Receive and file the artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Patrick Barwinski for the creation and installation of a 2,835 square foot mural at the Moreno Valley Conference & Recreation Center (CRC); and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

H.5. REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –SHAYNE MITCHELL WESTBLUFF PARK RESTROOM MURAL (Report by: Parks & Community Services)

Recommendations: That the City Council:

1. Receive and file the artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Shayne Mitchell for the creation and installation of a 560 square foot mural at the Westbluff Park Restroom; and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

H.6. REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM CROGMAN FOR UTILITY BOX WRAPS AT FOUR INTERSECTIONS (Report by: Parks & Community Services)

Recommendations: That the City Council:

1. Receive and file the artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Maryam Crogman for the installation of utility box wraps at four intersection utility boxes at Eucalyptus & Heacock; Perris & Cottonwood; Alessandro Plaza & Alessandro; Perris & Alessandro; and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

I. REPORTS

I.1. CITY COUNCIL REPORTS

(Informational Oral Presentation - not for Council action)

March Joint Powers Commission (JPC)

Riverside County Habitat Conservation Agency (RCHCA)

Riverside County Transportation Commission (RCTC)

Riverside Transit Agency (RTA)

Western Riverside Council of Governments (WRCOG)

Western Riverside County Regional Conservation Authority (RCA)

School District/City Joint Task Force

I.2. EMPLOYEE ASSOCIATION REPORTS

I.3. CITY MANAGER'S REPORT

(Informational Oral Presentation - not for Council action)

CLOSING COMMENTS AND/OR REPORTS OF THE CITY COUNCIL, COMMUNITY SERVICES DISTRICT, CITY AS SUCCESSOR AGENCY FOR THE COMMUNITY REDEVELOPMENT AGENCY, HOUSING AUTHORITY, PUBLIC FINANCING AUTHORITY, BOARD OF LIBRARY TRUSTEES AND MORENO VALLEY COMMUNITY FOUNDATION BOARD.

ADJOURNMENT

PUBLIC INSPECTION

The contents of the agenda packet are available for public inspection on the City's website at www.moval.org and in the City Clerk's office at 14177 Frederick Street during normal business hours.

Any written information related to an open session agenda item that is known by the City to have been distributed to all or a majority of the City Council less than 72 hours prior to this meeting will be made available for public inspection on the City's website at www.moval.org and in the City Clerk's office at 14177 Frederick Street during normal business hours.

CERTIFICATION

I, Jane Halstead, City Clerk of the City of Moreno Valley, California, certify that 72 hours prior to this Regular Meeting, the City Council Agenda was posted on the City's website at: www.moval.org and in the following three public places pursuant to City of Moreno

Valley Resolution No. 2007-40:

City Hall, City of Moreno Valley
14177 Frederick Street

Moreno Valley Library
25480 Alessandro Boulevard

Moreno Valley Senior/Community Center
25075 Fir Avenue

Jane Halstead, CMC
City Clerk

Date Posted: 11/30/23

**MINUTES
CITY COUNCIL OF THE CITY OF MORENO VALLEY
MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY AS SUCCESSOR AGENCY FOR THE
COMMUNITY REDEVELOPMENT AGENCY OF THE
CITY OF MORENO VALLEY
MORENO VALLEY PUBLIC FINANCING AUTHORITY
MORENO VALLEY HOUSING AUTHORITY**

**CLOSED SESSION – 5:00 PM
November 21, 2023**

CALL TO ORDER

The Closed Session of the City Council of the City of Moreno Valley, Moreno Valley Community Services District, City as Successor Agency for the Community Redevelopment Agency of the City of Moreno Valley, Housing Authority, and the Moreno Valley Public Financing Authority was called to order at 5:02 p.m. by Mayor Cabrera in the Council Chamber located at 14177 Frederick Street, Moreno Valley, California.

Mayor Cabrera announced that the City Council receives a separate stipend for CSD meetings.

Motion to excuse the absence of Council Member Barnard.

Motion moved by Council Member Marquez and seconded by Mayor Pro Tem Delgado to excuse the absence of Council Member Barnard.

Motion passed by a vote of 3-0, with Council Member Marquez, Mayor Pro Tem Delgado, and Mayor Cabrera voting yes, with Council Member Barnard and Council Member Baca-Santa Cruz absent.

RESULT: APPROVED [UNANIMOUS]
MOVER: David Marquez, Council Member
SECONDER: Ed Delgado, Mayor Pro Tem
AYES: Ulises Cabrera, Ed Delgado, David Marquez
ABSENT: Cheylynda Barnard, Elena Baca-Santa Cruz

ROLL CALL

Council:	Ulises Cabrera	Mayor
	Ed Delgado	Mayor Pro Tem
	David Marquez	Council Member
	Elena Baca-Santa Cruz	Council Member
Absent:	Cheylynda Barnard	Council Member

Minutes Acceptance: Minutes of Nov 21, 2023 5:00 PM (CONSENT CALENDAR-CITY COUNCIL)

* Council Member Baca-Santa Cruz was absent at the time of roll call, arriving in the Council Chambers at 5:04pm.

PUBLIC COMMENTS ON MATTERS ON THE AGENDA ONLY

Public comment was provided at the end of the meeting.

CLOSED SESSION

City Attorney Steven Quintanilla announced that the City Council would recess to Closed Session to discuss the items as listed on the agenda and that he did anticipate reportable action.

A CONFERENCE WITH LABOR NEGOTIATORS

Pursuant to Government Code Section 54957.6(A)
 City Representative: Brian Mohan, Assistant City Manager
 Employee Organization: Moreno Valley City Employee Association

Mayor Cabrera recessed the City Council to the City Manager's Conference Room, second floor, City Hall, for their Closed Session at 5:04 p.m.

Mayor Cabrera reconvened the City Council in the Council Chamber from their Closed Session at 5:30 p.m.

REPORT OF ACTION FROM CLOSED SESSION, IF ANY, BY CITY ATTORNEY

City Attorney Steven Quintanilla reported the City Council voted 4-0 (Mayor Cabrera, Mayor Pro Tem Delgado, Council Member Marquez, and Council Member Baca-Santa Cruz voting yes, and Council Member Barnard absent) to agree to recognize the November 23, 2023 Notice of Affiliation received from the Moreno Valley City Employee Association (MVCEA) that the International Brotherhood of Electrical Workers, Local 47, based on a majority vote of the MVCEA membership, will be representing the membership.

Public comment was provided after the City Attorney's Closed Session read out.

Angel Orellana

1. MVCEA representation.

ADJOURNMENT

There being no further business to come before the City Council, Mayor Cabrera adjourned the meeting at 5:33 p.m.

Submitted by:

Jane Halstead, CMC
 City Clerk
 Secretary, Moreno Valley Community Services District
 Secretary, City as Successor Agency for the Community
 Redevelopment Agency of the City of Moreno Valley
 Secretary, Moreno Valley Housing Authority
 Secretary, Board of Library Trustees
 Secretary, Public Financing Authority

Approved by:

Ulises Cabrera
 Mayor
 City of Moreno Valley
 President, Moreno Valley Community Services District
 Chairperson, City as Successor Agency for the Community
 Redevelopment Agency of the City of Moreno Valley
 Chairperson, Moreno Valley Housing Authority
 Chairperson, Board of Library Trustees
 Chairperson, Public Financing Authority

**MINUTES
CITY COUNCIL REGULAR MEETING OF THE CITY OF MORENO VALLEY
November 21, 2023**

CALL TO ORDER - 5:30 PM

SPECIAL PRESENTATIONS

1. HELEN PUTMAN AWARDS PRESENTATION
2. PROCLAMATION - NOVEMBER IS FAMILY COURT AWARENESS MONTH

**MINUTES
JOINT MEETING OF THE
CITY COUNCIL OF THE CITY OF MORENO VALLEY
MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY AS SUCCESSOR AGENCY FOR THE
COMMUNITY REDEVELOPMENT AGENCY OF THE
CITY OF MORENO VALLEY
MORENO VALLEY HOUSING AUTHORITY
MORENO VALLEY PUBLIC FINANCING AUTHORITY
BOARD OF LIBRARY TRUSTEES**

**REGULAR MEETING – 6:00 PM
November 21, 2023**

CALL TO ORDER

The Joint Meeting of the City Council, Community Services District, City as Successor Agency for the Community Redevelopment Agency of the City of Moreno Valley, Moreno Valley Housing Authority, Moreno Valley Public Financing Authority and the Board of Library Trustees was called to order at 6:01 p.m. by Mayor Cabrera in the Council Chamber located at 14177 Frederick Street.

Mayor Cabrera announced that the City Council receives a separate stipend for CSD meetings.

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Mayor Pro Tem Delgado.

INVOCATION

The invocation was given by Pastor Festus Anwuli from Christ Dominion Ministries International.

ROLL CALL

Council:	Ulises Cabrera	Mayor
	Ed Delgado	Mayor Pro Tem
	Elena Baca-Santa Cruz	Council Member
	David Marquez	Council Member
Absent:	Cheylynda Barnard	Council Member

Minutes Acceptance: Minutes of Nov 21, 2023 6:00 PM (CONSENT CALENDAR-CITY COUNCIL)

Motion to excuse the absence of Council Member Barnard.

Motion moved by Council Member Marquez and seconded by Mayor Cabrera to excuse the absence of Council Member Barnard.
Motion passed by a vote of 4-0, with Council Member Baca-Santa Cruz,

Council Member Marquez, Mayor Pro Tem Delgado, and Mayor Cabrera voting yes and Council Member Barnard absent.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	David Marquez, Council Member
SECONDER:	Ulises Cabrera, Mayor
AYES:	Ulises Cabrera, Ed Delgado, David Marquez, Elena Baca-Santa Cruz
ABSENT:	Cheylynda Barnard

INTRODUCTIONS

Staff:	Jane Halstead	Manager of the Office of the Mayor and City Council/City Clerk
	Patty Rodriguez	Senior Deputy City Clerk
	Steven Quintanilla	City Attorney
	Mike Lee	City Manager
	Brian Mohan	Assistant City Manager
	Michael Lloyd	Assistant City Manager
	Sean Kelleher	Community Development Director
	Launa Jimenez	Chief Financial Officer, City Treasurer
	Melissa Walker	Public Works Director/City Engineer
	Jeremy Bubnick	Parks and Community Services Director
	Robert Cardenas	Human Resources Director
	Ken Reichle	Chief of Police
	Jesse Park	Fire Chief

PUBLIC COMMENTS ON ANY SUBJECT NOT ON THE AGENDA UNDER THE JURISDICTION OF THE CITY COUNCIL

Fred Banuelos

- 1. Homelessness issue.

Daryl Terrell

- 1. Thanksgiving.

Bob Palomarez

Minutes Acceptance: Minutes of Nov 21, 2023 6:00 PM (CONSENT CALENDAR-CITY COUNCIL)

- 1. Homekey Program.

Chris Baca

- 1. Drug issues.
- 2. Bike path issues.

Pete Bleckert

- 1. Bike path and road issues.

Roy Bleckert

- 1. City issues.

PUBLIC COMMENTS ON ANY SUBJECT ON THE AGENDA UNDER THE JURISDICTION OF THE CITY COUNCIL

None.

JOINT CONSENT CALENDARS (SECTIONS A-E)

Mayor Cabrera asked the City Council if there were any items they would like removed from the Consent Calendar for separate action.

Council Member Marquez asked to have item A.7 pulled for separate action.

Mayor Cabrera had questions regarding item A.13.

Assistant City Manager Brian Mohan responded to Mayor Cabrera’s questions.

With no further questions, Mayor Cabrera entertained a motion.

Motion made by Mayor Pro Tem Delgado and seconded by Council Member Baca-Santa Cruz to approve the consent calendar excluding item A.7.

Motion passed by a vote of 4-0, with Council Member Baca-Santa Cruz, Council Member Marquez, Mayor Pro Tem Delgado, and Mayor Cabrera voting yes with Council Member Barnard absent.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Ed Delgado, Mayor Pro Tem
SECONDER:	Elena Baca-Santa Cruz, Council Member
AYES:	Ulises Cabrera, Ed Delgado, David Marquez, Elena Baca-Santa Cruz
ABSENT:	Cheylynda Barnard

A. CONSENT CALENDAR-CITY COUNCIL

Minutes Acceptance: Minutes of Nov 21, 2023 6:00 PM (CONSENT CALENDAR-CITY COUNCIL)

- A.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- A.2. City Council - Closed Session - Nov 7, 2023 4:30 PM

- A.3. City Council - Regular Meeting - Nov 7, 2023 6:00 PM

- A.4. COUNCIL DISCRETIONARY EXPENDITURE REPORTS FOR FISCAL YEAR 2023/2024 FROM JULY 1, 2023 THROUGH September 30, 2023. (Report of: City Clerk)

Recommendation:

1. Receive and file the Fiscal Year 2023/2024 Council Discretionary Expenditure Report for July 1, 2023 through September 30, 2023.

- A.5. COUNCIL TRAINING & TRAVEL EXPENDITURE REPORTS FOR FISCAL YEAR 2023-2024 (Report of: City Clerk)

Recommendation:

1. Receive and file the Training & Travel Authorization Forms for the month of October 2023.

- A.6. A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, DECLARING PURSUANT TO CALIFORNIA GOVERNMENT CODE § 54221 THAT THE REAL PROPERTY IDENTIFIED AS APNS 487-470-030 AND 487-470-031 (LOCATED AT THE NWC OF ALESSANDRO BOULEVARD AND NASON STREET) IS SURPLUS LAND AND NOT NECESSARY FOR THE CITY'S USE AT THIS TIME, FINDING THAT SUCH DECLARATION IS EXEMPT FROM ENVIRONMENTAL REVIEW UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, AND APPROVING CERTAIN RELATED ACTIONS (Report of: City Manager)

Recommendation:

Adopt City Council Resolution No. 2023-78 declaring pursuant to California Government Code § 54221 that the real property identified as APNs 487-470-030 and 487-470-031 (located at the NWC of Alessandro Boulevard and Nason Street) is surplus land and not necessary for the City's use at this time, finding that such declaration is exempt from environmental review under the California

Environmental Quality Act, and approving certain related actions.

A.7. Item Pulled from Consent

A.8. LIST OF PERSONNEL CHANGES (Report of: City Manager)

Recommendation:

1. Ratify the list of personnel changes as described.

A.9. RECEIPT OF QUARTERLY INVESTMENT REPORT FOR THE QUARTER ENDED SEPTEMBER 30,2023 (Report of: Financial & Management Services)

Recommendation:

1. Receive and file the Quarterly Investment Report for quarter ended September 30, 2023, in compliance with the City's Investment Policy.

A.10. ADOPTION OF RESOLUTION APPROVING THE ANNUAL ADJUSTMENT TO THE CITY USER FEE SCHEDULE – PARKS & COMMUNITY SERVICES FEES FOR 2024 (Report of: Parks & Community Services)

Recommendation: That the City Council:

1. Adopt Resolution 2023-79 approving a CPI adjustment to the Parks and Community Services User Fees.

A.11. AUTHORIZE SUBMISSION OF GRANT APPLICATION TO CA STATE PARKS OUTDOOR EQUITY GRANTS PROGRAM (Report of: Parks & Community Services)

Recommendations: That the City Council and CSD:

1. Authorize the Executive Director or its Authorized Representative, Parks & Community Services Director, to submit a grant application to California Department of Parks and Recreation (DPR) Office of Grants and Local Services (OGALS) for the Outdoor Equity Grants Program (OEP); and
2. Adopt Resolution No. CSD 2023-95. A resolution of the Moreno Valley Community Services District of the City of Moreno Valley, California, approving submission of an application for the Outdoor Equity Grants Program Grant Funds and authorizing the Parks and Community Services Director to conduct all negotiations, sign and submit all documents, including, but not limited to applications,

agreements, amendments, and payment requests, which may be necessary for the completion of the Grant Scope; and

3. If awarded, accept, and receive grant award funds from California Department of Parks and Recreation Outdoor Equity Grants Program; and
4. Authorize the Executive Director or designee to process necessary agreements, budget adjustments and appropriations based on actual grant award funds received.

A.12. ADOPT A RESOLUTION OF THE CITY OF MORENO VALLEY APPROVING THE ANNUAL ADJUSTMENT TO QUIMBY IN-LIEU FEES PURSUANT TO CHAPTER 3.40.110 OF THE MORENO VALLEY MUNICIPAL CODE (Report of: Parks & Community Services)

Recommendation:

1. Adopt Resolution No. 2023-80, authorizing an adjustment to Quimby In-Lieu fees.

A.13. APPROVE REPLACEMENT OF THREE POLICE MOTORCYCLES (Report of: Police Department)

Recommendation:

1. Authorize the purchase of three (3) 2024 BMW R 1250 RT-P police motorcycles and related emergency equipment totaling \$116,165.97.
2. Authorize the transfer of \$93,772.98 from the Equipment Replacement Fund 7510 to General Fund 1010 to add to the budgeted amount of \$21,000 in General Fund Account 1010-60-67-40210-660322 to use for the purchase of three (3) 2024 BMW R 1250 RT-P police motorcycles and related emergency equipment.

A.14. APPROVAL TO USE ASSET FORFEITURE FUNDS TO PURCHASE PORTABLE SECURITY EQUIPMENT (Report of: Police Department)

1. Authorize the Police Department to purchase portable security equipment and related services at a cost of \$106,925 (\$97,205 plus a 10% contingency of \$9,720), and
2. Authorize a budget adjustment as set forth in the Fiscal Impact Section of this report.

B. CONSENT CALENDAR-COMMUNITY SERVICES DISTRICT

- B.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- B.2. MINUTES - CITY COUNCIL - CLOSED SESSION - NOVEMBER 7, 2023 4:30 PM.

Recommendation:

- 1: Approve as submitted.

- B.3. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 7, 2023 6:00 PM.

Recommendation:

- 1: Approve as submitted.

C. CONSENT CALENDAR - HOUSING AUTHORITY

- C.1. JOINT MEETING OF CITY COUNCIL AND HOUSING AUTHORITY RE A PROPOSED PRELIMINARY AWARD LETTER THE CITY AND HOUSING AUTHORITY PROVIDE CERTAIN COMMITMENTS TO LINWOOD ROSE, L.P. OR ITS AFFILIATE, INCLUDING THE CITY'S COMMITMENT TO SELL CERTAIN REAL PROPERTY LOCATED AT 24108 AND 24124 FIR AVENUE THEREBY PROVIDING SITE CONTROL AND AN ENFORCEABLE FINANCIAL COMMITMENT TO ISSUE THE RESIDUAL RECEIPTS MOVAL LOAN RELATING TO PROPOSED DEVELOPMENT OF THE LINWOOD ROSE PROJECT, A 36-UNIT AFFORDABLE HOUSING PROJECT (Report of: Financial & Management Services)

Recommendations:

1. Adopt City Council Resolution No. 2023-81 approving the Preliminary Award Letter issued by the City and Housing Authority to Linwood Rose, L.P. or Affiliate for development of The Linwood Rose Affordable Housing Project, including authority for the City Manager in consultation with the City Attorney to execute and implement the Preliminary Award Letter.
2. Adopt Housing Authority Resolution No. HA 2023-06 approving the Preliminary Award Letter issued by the City and Housing Authority to Linwood Rose, L.P or Affiliate for development of The Linwood Rose Affordable Housing Project, including authority for the Executive Director in consultation with General Counsel to execute and implement the Preliminary Award Letter.

- C.2. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- C.3. MINUTES - CITY COUNCIL - CLOSED SESSION - NOVEMBER 7, 2023 4:30 PM.

Recommendation:

1: Approve as submitted.

- C.4. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 7, 2023 6:00 PM.

Recommendation:

1: Approve as submitted.

D. CONSENT CALENDAR - BOARD OF LIBRARY TRUSTEES

- D.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- D.2. MINUTES - CITY COUNCIL - CLOSED SESSION - NOVEMBER 7, 2023 4:30 PM.

Recommendation:

1: Approve as submitted.

- D.3. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 7, 2023 6:00 PM.

Recommendation:

1: Approve as submitted.

E. CONSENT CALENDAR - PUBLIC FINANCING AUTHORITY

- E.1. ORDINANCES - READING BY TITLE ONLY - THE MOTION TO ADOPT AN ORDINANCE LISTED ON THE CONSENT CALENDAR INCLUDES WAIVER OF FULL READING OF THE ORDINANCE.

Recommendation: Waive reading of all Ordinances.

- E.2. MINUTES - CITY COUNCIL - CLOSED SESSION - NOVEMBER 7, 2023
4:30 PM.

Recommendation:

- 1: Approve as submitted.

- E.3. MINUTES - CITY COUNCIL - REGULAR MEETING - NOVEMBER 7, 2023
6:00 PM.

Recommendation:

- 1: Approve as submitted.

F. PUBLIC HEARINGS

- F.1. PUBLIC HEARING, SECOND READING, AND ADOPTION OF COUNTY ORDINANCE NUMBER 987 REGARDING UNLAWFUL POSSESSION OF CATALYTIC CONVERTERS (ORD. NO. 1003) (Report of: City Manager)

Recommendations: That the City Council:

1. **CONDUCT** a Public Hearing to receive public input on the proposed Ordinance adopting Riverside County Ordinance number 987 regarding unlawful possession of catalytic converters; and
2. **CONDUCT** a second reading by title only and adopt Ordinance No. 1003, amending Title 11 of the City of Moreno Valley Municipal Code, adding Chapter 11.97, adopting by reference Riverside County Ordinance No. 987.

Staff report was provided by Assistant City Manager Brian Mohan.

With the conclusion of the staff report, Mayor Cabrera opened the floor for Council questions of staff.

With no Council questions of staff, Mayor Cabrera opened the public hearing.

Darryl Terrell

1. Support.

Roy Bleckert

1. County funding.

Public comments were heard.

With the conclusion of public comments, Mayor Cabrera called for Council deliberation.

Mayor Cabrera asked questions regarding staff.

City Manager Mike Lee and Assistant City Manager Brian Mohan responded to Mayor Cabrera's inquiries.

With no Council deliberation, Mayor Cabrera entertained a motion.

Motion made by Council Member Baca-Santa Cruz and seconded by Mayor Pro Tem Delgado to approve the second of reading of Ordinance 1003.

Motion passed by a vote of 4-0, with Council Member Baca-Santa Cruz, Council Member Marquez, Mayor Pro Tem Delgado, and Mayor Cabrera voting yes with Council Member Barnard absent.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Elena Baca-Santa Cruz, Council Member
SECONDER:	David Marquez, Council Member
AYES:	Ulises Cabrera, Ed Delgado, David Marquez, Elena Baca-Santa Cruz
ABSENT:	Cheylynda Barnard

- F.2. PUBLIC HEARING ON THE ESTABLISHMENT OF COMMUNITY FACILITIES DISTRICT 2023-01 (PUBLIC SAFETY SERVICES); ACTIONS RELATED TO THE ESTABLISHMENT OF SAME; THE LEVY OF A SPECIAL TAX WITHIN SAME; AND THE ESTABLISHMENT OF A FUTURE ANNEXATION AREA IN CONNECTION WITH SAME (RESO. NO. 2023-82, 2023-83, 2023-84, ORD. NO. 1004) (Report of: Financial & Management Services)

Recommendations: That the City Council:

1. Conduct the Public Hearing on the establishment of Community Facilities District No. 2023-01 (Public Safety Services).
2. Adopt Resolution No. 2023-82, a Resolution of the City Council of the City of Moreno Valley, California, Establishing Community Facilities District No. 2023-01 (Public Safety Services) and Calling a Special Election in Connection with said District.

3. Direct the City Clerk of the City of Moreno Valley to canvass the special election and report the results of the special election to the City Council.
4. Adopt Resolution No. 2023-83, a Resolution of the City Council of the City of Moreno Valley, California, Declaring the Results of an Election in Community Facilities District No. 2023-01 (Public Safety Services).
5. Introduce Ordinance No. 1004, an Ordinance of the City Council of the City of Moreno Valley, California, Levying a Special Tax in Connection with Community Facilities District No. 2023-01 (Public Safety Services) and Taking Certain Related Actions.
6. Adopt Resolution No. 2023-84, a Resolution of the City Council of the City of Moreno Valley, California, Declaring its Intention to Provide for Future Annexation of Territory to Community Facilities District No. 2023-01 (Public Safety Services).

Chief Financial Officer Launa Jimenez provided the staff report.

With the conclusion of the staff report, Mayor Cabrera called for Council questions of staff.

With no Council questions of staff, Mayor Cabrera opened the public hearing.

With no public comments, Mayor Cabrera closed the public hearing.

Mayor Cabrera called for Council deliberation.

With no Council deliberation, Mayor Cabrera entertained a motion.

Motion made by Mayor Pro Tem Delgado and seconded by Mayor Cabrera to adopt Resolution 2023-82 and direct the City Clerk to canvass the Special Election and report the results to the City Council.

Motion passed by a vote of 4-0, with Council Member Baca-Santa Cruz, Council Member Marquez, Mayor Pro Tem Delgado, and Mayor Cabrera voting yes with Council Member Barnard absent.

RESULT: APPROVED [UNANIMOUS]
MOVER: Ed Delgado, David Marquez
SECONDER: Ulises Cabrera, Mayor
AYES: Ulises Cabrera, Ed Delgado, David Marquez, Elena Baca-

ABSENT: Santa Cruz
Cheylynda Barnard

City Clerk Jane Halstead opened the ballot and stated the ballot contained 9 "yes" votes.

With the Special Election ballot canvassed, Mayor Cabrera entertained a motion.

Motion made by Council Member Marquez and seconded by Mayor Pro Tem Delgado to adopt Resolution 2023-83, introduce Ordinance 1004, and adopt Resolution 2023-84.

Motion passed by a vote of 4-0, with Council Member Baca-Santa Cruz, Council Member Marquez, Mayor Pro Tem Delgado, and Mayor Cabrera voting yes with Council Member Barnard absent.

RESULT: APPROVED [UNANIMOUS]
MOVER: David Marquez, Council Member
SECONDER: Ed Delgado, Mayor Pro Tem
AYES: Ulises Cabrera, Ed Delgado, David Marquez, Elena Baca-Santa Cruz
ABSENT: Cheylynda Barnard

G. ITEMS REMOVED FROM CONSENT CALENDARS FOR DISCUSSION OR SEPARATE ACTION

G.1. AUTHORIZATION TO AWARD AGREEMENT FOR ON-SITE AND/OR PROFESSIONAL SERVICES FOR CITYWIDE SHOPPING CART RETRIEVAL SERVICES TO CART RETRIEVAL, INC. (AGMT. NO. 2023-178) (Report of: Community Development)

Recommendations:

1. Approve and award an agreement with Cart Retrieval, Inc. to provide citywide shopping cart retrieval services not-to-exceed \$365,000.00, and authorize the City Manager, or their designee, to execute the agreement, and any subsequent amendments, subject to the approval of the City Attorney, in accordance with approved budgets previously approved by Council during the adopted budget process.
2. Authorize the Purchasing Division Manager, or their designee, to approve a purchase order to Cart Retrieval, Inc. in accordance with approved terms of the Agreement.

3. Authorize the Chief Financial Officer, or their designee, to make any necessary budget adjustments as recommended in this report.

Community Development Director Sean Kelleher provided the staff report.

Council Member Marquez and Mayor Cabrera asked questions of staff.

Community Development Director Sean Kelleher and City Attorney Steven Quintanilla responded to Council's inquiries.

With the conclusion of Council questions, Mayor Cabrera called for public comments to be heard.

David Zeitz (A-7)

1. Opposed.

Roy Bleckert (A-7)

1. Opposed.

Bob Palomarez (A-7)

1. Opposed.

Public comments were heard.

With the conclusion of public comments, Mayor Cabrera called for Council deliberation.

After the conclusion of Council deliberation, Mayor Cabrera entertained a motion.

Motion made by Mayor Pro Tem Delgado and seconded by Council Member Baca-Santa Cruz to award agreement for on-site and/or professional services for city-wide shopping cart retrieval services to Cart Retrieval, Inc.

Motion passed by a vote of 3-1, with Council Member Baca-Santa Cruz, Mayor Pro Tem Delgado, and Mayor Cabrera voting yes, Council Member Marquez voting no and Council Member Barnard absent.

RESULT: APPROVED [3 TO 1]
MOVER: Ed Delgado, Mayor Pro Tem
SECONDER: Elena Baca-Santa Cruz, Council Member
AYES: Ulises Cabrera, Ed Delgado, Elena Baca-Santa Cruz
NAYS: David Marquez
ABSENT: Cheylynda Barnard

H. GENERAL BUSINESS

H.1. REPORT ON EVALUATION OF POTENTIAL COMMERCIAL VEHICLE PARKING ON EUCALYPTUS AVENUE (Report of: Public Works)

Recommendation:

1. Authorize staff to review the north side of Eucalyptus Avenue, west of Aldi Place, for Commercial Vehicle Parking.
Public Works Director Melissa Walker provided the staff report.

With the conclusion of the staff report, Mayor Cabrera opened the floor for Council questions of staff.

Mayor Pro Tem Delgado and Council Member Marquez asked questions of staff.

Public Works Director Melissa Walker responded to Council's inquiries.

With the conclusion of Council questions, Mayor Cabrera called for public comments to be heard.

Roy Bleckert

1. Comprehensive truck parking plan

Public comments were heard.

Mayor Cabrera opened the floor for Council deliberation.

After Council deliberation, Mayor Cabrera entertained a motion.

Motion made by Mayor Pro Tem Delgado and seconded by Council Member Marquez to authorize staff to review the north side of Eucalyptus Avenue, west of Aldi Place, for Commercial Vehicle Parking.

Motion passed by a vote of 4-0, with Council Member Baca-Santa Cruz, Council Member Marquez, Mayor Pro Tem Delgado, and Mayor Cabrera voting yes with Council Member Barnard absent.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Ed Delgado, Mayor Pro Tem
SECONDER:	David Marquez, Council Member
AYES:	Ulises Cabrera, Ed Delgado, David Marquez, Elena Baca-Santa Cruz
ABSENT:	Cheylynda Barnard

I.REPORTS

I.1.CITY COUNCIL REPORTS

(Informational Oral Presentation - not for Council action)

March Joint Powers Commission (JPC)

None.

Riverside County Habitat Conservation Agency (RCHCA)

None.

Riverside County Transportation Commission (RCTC)

None.

Riverside Transit Agency (RTA)

Council Member Marquez reported the following:

The Board heard a presentation on the installation and maintenance of four (4) custom shelters in Mead Valley as part of the RTA's Bus Stop Strategic Policy.

Also, the Board accepted the Riverside Transit Agency's FY23 audited Basic Financial Statements, Single Audit Report, and Audit Communication Letter as final.

Western Riverside Council of Governments (WRCOG)

None.

Western Riverside County Regional Conservation Authority (RCA)

None.

School District/City Joint Task Force

Council Member Baca-Santa Cruz reported the following:

The City recommends creating one Joint Use Agreement to cover facilities, services and summer pool access. City staff has met with MVUSD and anticipates the Joint Use Agreement in place by early 2024, with a commitment for 2024 summer pool use in writing by the end of 2023.

The City will schedule a Joint Special Meeting with the City of Moreno Valley, Moreno Valley College, Moreno Valley Unified School District, and Val Verde Unified School District representatives to discuss ways to avoid day and time conflicts for Council and Board study sessions and meetings.

I.2. EMPLOYEE ASSOCIATION REPORTS

None.

I.3. CITY MANAGER'S REPORT

1. Snow Day.
2. Happy Thanksgiving.

CLOSING COMMENTS AND/OR REPORTS OF THE CITY COUNCIL, COMMUNITY SERVICES DISTRICT, CITY AS SUCCESSOR AGENCY FOR THE COMMUNITY REDEVELOPMENT AGENCY, HOUSING AUTHORITY, PUBLIC FINANCING AUTHORITY, AND THE BOARD OF LIBRARY TRUSTEES.

Council Member Baca-Santa Cruz

1. Library Commission.
2. Environmental and Historical Preservation Committee.
3. Veterans Day events.

4. Tree Lighting and Snow Day events.

*Council Member Baca-Santa Cruz left the dais at 7:37pm.

Council Member Marquez

1. Appreciation for Veterans Day award.
2. Wished everyone a safe Thanksgiving.

Mayor Pro Tem Delgado

1. Rising Stars Business Academy event.
2. Veterans Day Ceremony.
3. Apprenticeship Expo.
4. Happy Thanksgiving.

Mayor Cabrera

1. Addressed issues provided during public comments.
2. Apprenticeship Expo.
3. Veterans Day Ceremony.
4. Little free libraries.
5. Telephone Town Hall.
6. Color Fun Run.
7. Turkey Giveaway.
8. Happy Thanksgiving.

ADJOURNMENT

There being no further business to come before the City Council, Mayor Cabrera adjourned the meeting at 7:47PM.

PUBLIC INSPECTION

The contents of the agenda packet are available for public inspection on the City's website at www.moval.org and in the City Clerk's office at 14177 Frederick Street during

normal business hours.

Any written information related to an open session agenda item that is known by the City to have been distributed to all or a majority of the City Council less than 72 hours prior to this meeting will be made available for public inspection on the City's website at www.moval.org and in the City Clerk's office at 14177 Frederick Street during normal business hours.

Submitted by:

Jane Halstead, CMC
 City Clerk
 Secretary, Moreno Valley Community Services District
 Secretary, City as Successor Agency for the Community
 Redevelopment Agency of the City of Moreno Valley
 Secretary, Moreno Valley Housing Authority
 Secretary, Board of Library Trustees
 Secretary, Public Financing Authority

Approved by:

Ulises Cabrera
 Mayor
 City of Moreno Valley
 President, Moreno Valley Community Services District
 Chairperson, City as Successor Agency for the Community
 Redevelopment Agency of the City of Moreno Valley
 Chairperson, Moreno Valley Housing Authority
 Chairperson, Board of Library Trustees
 Chairperson, Public Financing Authority



Report to City Council

TO: Mayor and City Council

FROM: Launa Jimenez, Chief Financial Officer

AGENDA DATE: December 5, 2023

TITLE: PAYMENT REGISTER - OCTOBER 2023

RECOMMENDED ACTION

Recommendation:

1. Receive and file the Payment Register.

SUMMARY

The Payment Register is an important report providing transparency of financial transactions and payments for City activity for review by the City Council and the residents and businesses in Moreno Valley. The report is posted to the City's website as soon as it is available. The report is included in the City Council agenda as an additional means of distributing the report.

The payment register lists in alphabetical order all checks and wires in the amount of \$25,000 or greater, followed by a listing in alphabetical order of all checks and wires less than \$25,000. The payment register also includes the fiscal year-to-date (FYTD) amount paid to each vendor.

PREPARATION OF STAFF REPORT

Prepared By:
Annabelle Wang
Financial Operations Division Manager

Department Head Approval:
Launa Jimenez
Chief Financial Officer/City Treasurer

CITY COUNCIL GOALS

None

CITY COUNCIL STRATEGIC PRIORITIES

- 1. Economic Development
- 2. Public Safety
- 3. Library
- 4. Infrastructure
- 5. Beautification, Community Engagement, and Quality of Life
- 6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

- 1. 2023-OctoberPaymentRegister

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/28/23 7:43 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/29/23 7:49 AM



City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023

CHECKS IN THE AMOUNT OF \$25,000 OR GREATER

Vendor Name	Check/EFT Number	Payment Date	Inv Number	Invoice Description	Payment Amount
ACCO ENGINEERED SYSTEMS, INC	38519	10/04/2023	20439493	HVAC PREV MAINTENANCE-SENIOR CENTER	\$32,879.93
		10/04/2023	20445289	PUPPY COOLER HVAC REPAIR-ANIMAL SHELTER	
		10/04/2023	20445758	AC10 & AC12 LEAK CHECK-CONFERENCE & REC CENTER	
		10/04/2023	20446502	SWAMP COOLER #2 REPAIRS-FIRE STATION 65	
		10/04/2023	20447055	REPLACE ICE THICKNESS TIMER SWITCH-FIRE STATION 2	
	38574	10/04/2023	20457783	FREEZER SERVICE & REPAIRS-FIRE STATION 91	\$42,564.34
		10/04/2023	20458327	2ND FLOOR OFFICE HVAC RENOVATIONS-CITY HALL	
		10/11/2023	20439492	HVAC PREV MAINTENANCE-PUBLIC SAFETY BLDG.	
		10/11/2023	20462238	REPLACE PUPPY COOLER EVAP COIL & CONDENSING UNIT-ANIMAL SHELTER	
		10/11/2023	20462242	AC#2 VFD & MOTOR REPLACEMENT-PUBLIC SAFETY BLDG.	
		10/11/2023	20462602	PUPPY COOLER LEAK CHECK #2-ANIMAL SHELTER	
Remit to: PASADENA, CA					FYTD: \$214,912.32
ALL AMERICAN ASPHALT, INC.	246494	10/25/2023	203748	801 0090 CITYWIDE PVT REHAB	\$1,240,001.39
Remit to: CORONA, CA					FYTD: \$9,399,405.07
ANSER ADVISORY MANAGEMENT, LLC.	38712	10/18/2023	W801419	ON-CALL INSPECTION SERVICES-AUGUST 2023-LAND DEV	\$42,960.00
Remit to: SANTA ANA, CA					FYTD: \$114,900.00

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023

CHECKS IN THE AMOUNT OF \$25,000 OR GREATER

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
BIO-TOX LABORATORIES, INC.	246421	10/11/2023	44476	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	\$28,612.68
		10/11/2023	44528	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
		10/11/2023	44597	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
		10/11/2023	44598	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
		10/11/2023	44651	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
		10/11/2023	44666	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
Remit to: RIVERSIDE, CA					<u>FYTD:</u> \$50,729.37
CHARLES ABBOTT ASSOCIATES, INC	38523	10/04/2023	66246	ENGINEERING SVCS-AUGUST 2023	\$45,651.00
		10/04/2023	66248	PLAN CHECK SVCS-HIGHLAND FAIRVIEW/WLC-AUGUST 2023	
		10/04/2023	66249	PLAN CHECK SVCS-NPDES-AUGUST 2023	
		10/04/2023	66250	PLAN CHECK SVCS-WQMP REVIEW-AUGUST 2023	
	38718	10/18/2023	66384	ENGINEERING SVCS-SEPTEMBER 2023	\$25,609.75
		10/18/2023	66385	PLAN CHECK SVCS-TR38236/DR HORTON-SEPTEMBER 2023	
		10/18/2023	66386	PLAN CHECK SVCS-HIGHLAND FAIRVIEW/WLC-SEPTEMBER 2023	
		10/18/2023	66387	PLAN CHECK SVCS-NPDES-SEPTEMBER 2023	
		10/18/2023	66388	PLAN CHECK SVCS-WQMP REVIEW-SEPTEMBER 2023	
Remit to: MISSION VIEJO, CA					<u>FYTD:</u> \$194,924.00
COMPULINK MANAGEMENT CENTER, INC. - DBA LASERFICHE	38598	10/11/2023	5555COMV	PRODUCTION SYSTEM-ANNUAL CLOUD INVOICES-TECH SVCS	\$115,553.25
Remit to: LONG BEACH, CA					<u>FYTD:</u> \$125,705.25
CONSTELLATION ENERGY GENERATION, LLC	38599	10/11/2023	905703	POWER PURCHASE-9/01-9/30/23-MVU	\$806,842.40
Remit to: BALTIMORE, MD					<u>FYTD:</u> \$3,482,350.56

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023

CHECKS IN THE AMOUNT OF \$25,000 OR GREATER

Vendor Name	Check/EFT Number	Payment Date	Inv Number	Invoice Description	Payment Amount
COSCO FIRE PROTECTION, INC.	38602	10/11/2023	1000635348	2023 ANNUAL FIRE EXTINGUISHER INSPECTION REPAIRS-BERC	\$92,023.00
		10/11/2023	1000635353	2023 5 YR SPRINKLER & HYDRANT INSPECTION REPAIRS-FIRE STATION 2	
	10/11/2023	1000635360	ANNUAL FIRE EXT/5 YR SPRKLR&HDRNT INSPECT REPAIRS-ANIMAL SHELTER		
	10/11/2023	1000635366	2023 ANNUAL FIRE EXTINGUISHER/5 YR SPRINKLER INSPEC-ANNEX 1		
	10/11/2023	1000635555	2023 ANNUAL FIRE EXTINGUISHERS INSPECTION REPAIRS-MFPCC		
	10/11/2023	1000635558	2023 ANNUAL FIRE EXT/5 YR SPRKLR&HYDRANT INSPEC REPAIR-CITY YARD		
	10/11/2023	1000635560	2023 ANNUAL FIRE EXTINGUISHER INSPECTION REPAIRS-MALL LIBRARY		
	10/11/2023	1000635561	2023 5 YR SPRINKLER & HYDRANT INSPECTION REPAIRS-FIRE STATION 6		
		10/11/2023	1000635571	2023 5 YR SPRINKLER INSPECTION REPAIRS-FIRE STATION 48	
Remit to: BREA, CA					FYTD: \$112,237.00
DATA TICKET, INC.	38774	10/25/2023	157283	PARKING CITATION PROCESSING-CODE-SEPTEMBER 2023	\$27,219.72
		10/25/2023	157283HH	PARKING HANDHELD DEVICES LEASE-AIR TIME-CODE-SEPTEMBER 2023	
		10/25/2023	157690	ADMIN CITATION PROCESSING-ANIMAL SVC-SEPTEMBER 2023	
		10/25/2023	157692	ADMIN CITATION PROCESSING-CODE-SEPTEMBER 2023	
		10/25/2023	157692TPC	ADMIN CITATION PROCESSING-3RD PARTY COLLECTIONS-CODE-SEPT 2023	
		10/25/2023	157699	ADMIN CITATION PROCESSING-NTCG & HEARING LTRS FOR CODE-SEPT 2023	
Remit to: IRVINE, CA					FYTD: \$126,069.56

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



City of Moreno Valley
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CHECKS IN THE AMOUNT OF \$25,000 OR GREATER

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
DIGITAL TELECOMMUNICATIONS CORP.	38528	10/04/2023	48645	PBX PHONE SWITCH UPGRADES-TECH SVCS	\$38,112.48
		10/04/2023	48732	MONTHLY SERVICE CONTRACT-7/28/23 TO 8/27/23-TECH SVCS	
		10/04/2023	48987	MONTHLY SERVICE CONTRACT-8/28/23 TO 9/27/23-TECH SVCS	
	38609	10/11/2023	49236	MONTHLY SERVICE CONTRACT 9/29/23 TO 10/28/23 & SWA-TECH SVCS	\$26,739.00
Remit to: SANTA CLARITA, CA					<u>FYTD:</u> \$75,173.60
EASTERN MUNICIPAL WATER DISTRICT	246361	10/04/2023	SEP-23 10/04/23	WATER CHARGES	\$26,527.59
	246453	10/18/2023	SEP-23 10/18/23	WATER CHARGES	\$40,990.47
	246505	10/25/2023	OCT-23 10/25/23	WATER CHARGES	\$169,206.95
		10/25/2023	SEP-23 10/25/23	WATER CHARGES	
Remit to: LOS ANGELES, CA					<u>FYTD:</u> \$960,877.64

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
ENCO UTILITY SERVICES MORENO VALLEY LLC	38611	10/11/2023	40-408B-06	WA# 40-408B-RANCHO BELAGO PH 2	\$992,966.33
		10/11/2023	40-439B-02	WA# 40-439B-VIA DEL LAGO	
		10/11/2023	40-474B-12	WA# 40-474B-KB HOMES - MOOTHART 80 HOMES	
		10/11/2023	40-484B-03	WA# 40-484B-IRIS PARK 81 UNITS - TR 37909	
		10/11/2023	40-501-2309	MVU CONTRACT 40-501-ACQUIRED SCE STREETLIGHTS MAINTENANCE	
		10/11/2023	40-505B-06	WA# 40-505B-TRACT 37725 - 64 SF HOMES	
		10/11/2023	40-506B-04	WA# 40-506B-ROCAS GRANDES APARTMENTS	
		10/11/2023	40-513B-01	WA# 40-513B-OLD FRONTAGE AND BAY AVE	
		10/11/2023	40-514B-02	WA# 40-514B-SKYLER PLACE - TR 38123 177 SFR	
		10/11/2023	40-519A-04	WA# 40-519A-FREDERICK 12KV ELECTRICAL BACKBONE LOOP COMP PROJECT	
		10/11/2023	40-523B-09	WA# 40-523B-MV MARKETPLACE	
		10/11/2023	40-525A-05	WA# 40-525A-HILTON GARDEN INN	
		10/11/2023	40-527-12	WA# 40-527-WORLD LOGISTICS CENTER	
		10/11/2023	40-532A-04	WA# 40-532A-CONTINENTAL VILLAGES PH 2 - 8 DPXS AND APT UNITS	
		10/11/2023	40-535A-06	WA# 40-535A-STELLA PLACE 205 SFR	
		10/11/2023	40-537B-01	WA# 40-537B-RIVARD RD INDUSTRIAL	
		10/11/2023	40-547A-01	WA# 40-547A-YUM YUM DONUTS SHOP	
		10/11/2023	40-547A-02	WA# 40-547A-YUM YUM DONUTS SHOP	
		10/11/2023	40-551A-01	WA# 40-551A-MORENO VALLEY BUSINESS CENTER 3	
		10/11/2023	40-551A-02	WA# 40-551A-MORENO VALLEY BUSINESS CENTER 3	
		10/11/2023	40-554A-01	WA# 40-554A-AMAZON CHARGING STATION	
		10/11/2023	40-554A-02	WA# 40-554A-AMAZON CHARGING STATION	
		10/11/2023	40-555A-01	WA# 40-555A-HILTON HOME2 HOTEL	
		10/11/2023	40-555A-02	WA# 40-555A-HILTON HOME2 HOTEL	

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
ENCO UTILITY SERVICES MORENO VALLEY LLC	38611	10/11/2023	40-558A-01	WA# 40-558A-BELLA SERA 67 UNITS	\$992,966.33
		10/11/2023	INV61960	DISTRIBUTION CHARGES - 09/01/23 TO 09/30/23 - MVU	
Remit to: ANAHEIM, CA					FYTD: \$3,698,798.53
ESENTIRE, INC.	246492	10/18/2023	INESCA0022294	MICROSOFT 365 DEFENDER E5 BUNDLE-TECH SVCS	\$164,470.79
Remit to: WATERLOO, ON					FYTD: \$164,470.79
FRONTIER COMMUNICATIONS	246362	10/04/2023	7002Z183-S-23248	COMMUNICATIONS SVCS-CLOSED ACCT-TECH SVCS	\$34,206.29
Remit to: CINCINNATI, OH					FYTD: \$64,849.75
GREENTECH LANDSCAPE, INC.	38781	10/25/2023	56215	SD LANDSCAPE BASE (WEST) JULY ZONE 01, 01A, & E-7	\$84,487.74
		10/25/2023	56219	SD LANDSCAPE BASE (MORENO) JULY	
		10/25/2023	56436	SD LANDSCAPE BASE (WEST) AUGUST ZONE 01, 01A, & E-7	
		10/25/2023	56437	SD LANDSCAPE BASE (SOUTH) AUGUST WITH PENALTY	
		10/25/2023	56439	SD LANDSCAPE BASE (VALLEY) AUGUST ZONE D - PENALTIES ASSESSED	
		10/25/2023	56440	SD LANDSCAPE BASE (MORENO) AUGUST WITH PENALTIES	
Remit to: LOS ANGELES, CA					FYTD: \$447,166.91
HINDERLITER DE LLAMAS & ASSOCIATES	246458	10/18/2023	SIN030619	CANNABIS MANAGEMENT PROGRAM-JULY 2023	\$51,000.00
		10/18/2023	SIN032404	CANNABIS MANAGEMENT PROGRAM-SEPTEMBER 2023	
Remit to: BREA, CA					FYTD: \$59,129.04

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ITERIS, INC.	38625	10/11/2023	161211	VIDEO DETECTION EQUIPMENT-TRANSPORTATION	\$47,501.59
Remit to: SANTA ANA, CA					FYTD: \$47,501.59
J B BOSTICK COMPANY, INC	246510	10/25/2023	1	807 0060 PARK REHAB & REFURBISHMENT PROGRAM	\$234,948.31
Remit to: ANAHEIM, CA					FYTD: \$234,948.31
LIBRARY SYSTEMS & SERVICES, LLC	38539	10/04/2023	INV8357	LIBRARY CONTRACT SVCS & MATERIALS-MAIN/MALL/IRIS-OCTOBER 2023	\$206,146.75
Remit to: ROCKVILLE, MD					FYTD: \$1,051,227.11
M. BREY ELECTRIC, INC.	38541	10/04/2023	8829	REPAIRS TO A FAILING BLOCK WALL-FIRE STATION 65	\$270,178.00
		10/04/2023	8837	SLURRY COAT PARKING LOT BEHIND TRAINING AREA-FIRE STATION 58	
		10/04/2023	8861	2ND FLOOR OFFICE RENOVATIONS-CITY HALL	
	38737	10/18/2023	8860	ANIMAL SHELTER EXPANSION PROGRESS PAYMENT #2_803 0059	\$150,490.50
		10/18/2023	8862	ANIMAL SHELTER EXPANSION PROGRESS PAYMENT #3_803 0059	
		10/18/2023	8863	ANIMAL SHELTER EXPANSION PROGRESS PAYMENT #4_803 0059	
Remit to: BEAUMONT, CA					FYTD: \$953,913.23
MARIPOSA LANDSCAPES, INC.	38739	10/18/2023	104035	DETENTION BASIN MAINTENANCE SERVICES-AUG. 2023	\$26,764.81
		10/18/2023	104449	SD LANDSCAPE BASE (WQB) SEPTEMBER	
		10/18/2023	104457	SD LANDSCAPE BASE (NORTH) SEPT - ZN 02, 08 (LM01C CREDIT)	
		10/18/2023	104684	SD LANDSCAPE ADDITIONAL WORK (WQB) ID 8 & 9	
		10/18/2023	104685	SD LANDSCAPE ADDITIONAL WORK WQB, ID 8 & 13	
		10/18/2023	104691	SD LANDSCAPE ADDITIONAL WORK LM01C, TR: 24203	
Remit to: IRWINDALE, CA					FYTD: \$163,895.31

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MERCHANTS BUILDING MAINTENANCE, LLC.	38742	10/18/2023	765583	CITY FACILITIES ROUTINE JANITORIAL SERVICES - SEP. 2023	\$64,224.00
		10/18/2023	765584	COVID-19 DISINFECTANT CLEANING SERVICES - SEP. 2023	
Remit to: MONTEREY PARK, CA					FYTD: \$304,006.73
OPENGOV, INC	38652	10/11/2023	INV00014129	OPENGOV PROCUREMENT SUBSCRIPTION 10/01/23-09/30/24	\$57,640.00
Remit to: SAN JOSE, CA					FYTD: \$57,640.00
R J NOBLE CO., INC.	38803	10/25/2023	230855	801 0097 CITYWIDE PVT REHAB PROG (FY26-31)	\$31,824.90
Remit to: ORANGE, CA					FYTD: \$4,506,680.38
RE ASTORIA 2 LLC	38660	10/11/2023	2023_8_RE AST 2	RENEWABLE ENERGY-MV UTILITY-JULY 2023	\$78,579.34
		10/11/2023	2023_9_RE AST 2	RENEWABLE ENERGY-MV UTILITY-AUGUST 2023	
	38804	10/25/2023	2023_10_RE AST2	RENEWABLE ENERGY-MV UTILITY-SEPTEMBER 2023	\$31,217.65
Remit to: SAN FRANCISCO, CA					FYTD: \$149,677.07
RISING STARS BUSINESS ACADEMY	38747	10/18/2023	RSBA2023-5/FEB23	CALVIP - MOVAL VIOLENCE INTERVENTION & PREV. PROJECT SVCS REIMB.	\$56,432.31
		10/18/2023	RSBA2023-6/MAR23	CALVIP - MOVAL VIOLENCE INTERVENTION & PREV. PROJECT SVCS REIMB.	
	38806	10/25/2023	RSBA2023-7/APR23	CALVIP - MOVAL VIOLENCE INTERVENTION & PREV. PROJECT SVCS REIMB.	\$29,183.79
Remit to: MORENO VALLEY, CA					FYTD: \$125,805.18
RIVERSIDE COUNTY HABITAT CONSERVATION AGENCY	246465	10/18/2023	3RD QTR 2023	STEPHEN'S KANGAROO RAT MITIGATION FEES FOR QTR ENDING 9/30/23	\$25,145.00
Remit to: RIVERSIDE, CA					FYTD: \$30,545.00

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SC COMMERCIAL LLC DBA SC FUELS	38809	10/25/2023	2487057-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	\$35,776.17
		10/25/2023	2488029-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/25/2023	2490840-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/25/2023	2492188-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/25/2023	2492599-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/25/2023	2493168-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/25/2023	2495504-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/25/2023	2497469-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/25/2023	485543R-DM	FUEL FOR CITY VEHICLES & EQUIPMENT	
Remit to: ORANGE, CA					FYTD: \$254,906.37
SKANSKA USA CIVIL WEST CALIFORNIA DISTRICT, INC.	38811	10/25/2023	11	801 0021 SR60/MORENO BEACH PH 2	\$1,505,967.05
Remit to: RIVERSIDE, CA					FYTD: \$5,919,322.29

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SOUTHERN CALIFORNIA EDISON	246369	10/04/2023	7501586900	WDAT CHARGES-MVU/17160 KITCHING ST. SUBSTATION-AUG. 2023	\$71,399.59
		10/04/2023	7501586901	WDAT CHARGES-MVU/24417 NANDINA AVE. SUBSTATION-AUG. 2023	
		10/04/2023	7501586919	WDAT CHARGES-MVU/GRAHAM ST.-AUG. 2023	
		10/04/2023	7501586920	WDAT CHARGES-MVU/FREDERICK AVE.-AUG. 2023	
		10/04/2023	7501586921	WDAT CHARGES-MVU/SUBSTATION 115KV INTERCONNECTION-AUG. 2023	
	246435	10/11/2023	SEP-23 10/11/23	ELECTRICITY CHARGES	\$33,993.23
	246469	10/18/2023	282492235/SEP-23	ELECTRICITY-FERC CHARGES/MVU	\$112,171.15
		10/18/2023	355556776/SEP-23	ELECTRICITY CHARGES FOR ACQUIRED STREETLIGHTS	
		10/18/2023	395913224/SEP-23	ELECTRICITY CHARGES	
		10/18/2023	431591238/SEP-23	ELECTRICITY CHARGES FOR ACQUIRED STREETLIGHTS	
		10/18/2023	433869021/SEP-23	ELECTRICITY CHARGES FOR ADDED STREETLIGHTS	
		10/18/2023	435293103/SEP-23	ELECTRICITY CHARGES FOR ADDED STREETLIGHTS	
		10/18/2023	498683714/SEP-23	ELECTRICITY CHARGES FOR ACQUIRED STREETLIGHTS	
		10/18/2023	559238386/SEP-23	IFA & DISTRIBUTION UPGRADE CHARGES-KITCHING SUBSTATION	
		10/18/2023	570511709/SEP-23	IFA CHARGES-SUBSTATION	
	10/18/2023	SEP-23 10/18/23	ELECTRICITY CHARGES		
Remit to: ROSEMEAD, CA					FYTD: \$867,263.15
STEVEN B. QUINTANILLA A PROFESSIONAL CORPORATION	38750	10/18/2023	SEP-23/COLANTUON	SPECIAL COUNSEL LITIGATION SVCS-COLANTUONO ET AL. 09/01-09/30/23	\$25,511.52
		10/18/2023	SEP-23/NIELSEN	SPECIAL COUNSEL LITIGATION SVCS-NIELSEN, ET AL. 09/01-09/30/23	
Remit to: PALM SPRINGS, CA					FYTD: \$456,439.77

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SYNERGY COMPANIES	38676	10/11/2023	MVU RES DI 08-23	ENERGY AUDITS & INSTALLATION OF ENERGY EFFICIENT MEASURES-AUG23	\$140,380.82
	38816	10/25/2023	MVU RES DI 09-23	ENERGY AUDITS & INSTALLATION OF ENERGY EFFICIENT MEASURES-SEP23	\$108,054.17
Remit to: HAYWARD, CA					FYTD: \$632,111.69
TENASKA ENERGY, INC	38557	10/04/2023	MOREN00202309220	ELECTRICITY POWER PURCHASE-MV UTILITY	\$727,774.87
Remit to: ARLINGTON, TX					FYTD: \$1,956,358.71
THE ADVANTAGE GROUP/ FLEX ADVANTAGE	38679	10/11/2023	202310	OCTOBER 2023 RETIREE MEDICAL BENEFIT BILLING	\$52,580.11
Remit to: TEMECULA, CA					FYTD: \$203,970.28
THINK TOGETHER, INC	38752	10/18/2023	111-24-02	ASES EXPANDED LEARNING PROGRAM MGMT. SERVICES-INSTALLMENT #2	\$684,515.80
	38817	10/25/2023	111-24-03	ASES EXPANDED LEARNING PROGRAM MGMT. SERVICES-INSTALLMENT #3	\$684,515.80
Remit to: SANTA ANA, CA					FYTD: \$2,084,844.30
TRANSTECH ENGINEERS, INC.	246440	10/11/2023	20234721	801 0064 SR60/REDLANDS BLVD INTERCHANGE	\$88,684.39
Remit to: CHINO, CA					FYTD: \$127,119.56
U.S. BANK/CALCARDS	38562	10/04/2023	09-27-23	SEPTEMBER 2023 CALCARD ACTIVITY	\$310,763.87
Remit to: ST. LOUIS, MO					FYTD: \$1,252,787.56

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WELLS FARGO CORPORATE TRUST	38761	10/17/2023	W231001	DEBT SERVICE - 2021 LRB TAXABLE MVU	\$306,897.25
	38762	10/17/2023	W231002	DEBT SERVICE - 2019 LRB MVU	\$315,405.22
	38826	10/23/2023	W231003	DEBT SERVICE - 2014 REF OF 2005 LRB	\$2,011,775.00
Remit to: LOS ANGELES, CA					<u>FYTD:</u> \$3,377,596.39
WRCOG - WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS	38825	10/25/2023	1595 _1	REGIONAL FOOD RECOVERY PROGRAM TASKS	\$117,329.00
Remit to: RIVERSIDE, CA					<u>FYTD:</u> \$117,329.00
TOTAL AMOUNTS OF \$25,000 OR GREATER					\$12,772,397.00

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
DIAZ, STEVE	246372	10/04/2023	2003576; 2003577	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$36.00
Remit to: MORENO VALLEY, CA					FYTD: \$36.00
THOMAS, AUDREY	38573	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
4LEAF, INC	246493	10/25/2023	J3988R	PLANNING SERVICES-SEPTEMBER 2023	\$9,240.00
Remit to: PLEASANTON, CA					FYTD: \$57,080.00
ACCO ENGINEERED SYSTEMS, INC	38705	10/18/2023	20462895	REPAIR WATER LINE-SENIOR CENTER	\$13,185.57
		10/18/2023	20468515	A/C #10 COMPRESSOR REPAIR-CONFERENCE & REC CENTER	
		10/18/2023	20469161	DOOR GASKETS REPAIR-ANIMAL SHELTER	
		10/18/2023	20469162	REFRIGERATOR TOO HOT-SENIOR CENTER	
		10/18/2023	20469181	EF-13 FAN MOTOR PULLEYS REPLACEMENT-ANIMAL SHELTER	
Remit to: PASADENA, CA					FYTD: \$214,912.32
ADMINSURE	38706 38763	10/18/2023	16112	WORKERS' COMP CLAIM ADMIN-JULY 2023	\$2,515.00
		10/25/2023	16195	WORKERS' COMP CLAIM ADMIN-AUGUST 2023	\$7,545.00
		10/25/2023	16271	WORKERS' COMP CLAIM ADMIN-SEPTEMBER 2023	
		10/25/2023	16346	WORKERS' COMP CLAIM ADMIN-OCTOBER 2023	
Remit to: ONTARIO, CA					FYTD: \$12,501.00
ADOPT A HIGHWAY LITTER REMOVAL SERVICE OF AMERICA	38575	10/11/2023	246084	MONTHLY FEE FOR LITTER REMOVAL-HWY 60 WB	\$625.00
Remit to: ENCINITAS, CA					FYTD: \$1,250.00

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Vendor Name	Check/EFT Number	Payment Date	Inv Number	Invoice Description	Payment Amount
ADVANCE AVANT GARDE CORPORATION DBA AVANT GARDE IN	38576	10/11/2023	8844	HOME PROGRAM MANAGEMENT-AUGUST 2023	\$17,696.25
		10/11/2023	8845	HUD FUNDING COMPLIANCE SVCS-AUGUST 2023	
		10/11/2023	8846	HOME HABITAT FOR HUMANITY-AUGUST 2023	
	38707	10/18/2023	8909	HOME PROGRAM MANAGEMENT-SEPTEMBER 2023	\$16,685.00
		10/18/2023	8910	HUD FUNDING COMPLIANCE SVCS-SEPTEMBER 2023	
		10/18/2023	8911	HOME HABITAT FOR HUMANITY-SEPTEMBER 2023	
Remit to: DIAMOND BAR, CA					FYTD: \$76,432.50
ADVANCED APPLIED ENGINEERING, INC	38708	10/18/2023	28745	PLANNING CONSULTANT SERVICES-AUGUST 2023	\$5,805.00
Remit to: BREA, CA					FYTD: \$7,155.00
AGUIRRE, ILDEBERTO	38577	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
AGUNWAH, JANE VO	38578	10/11/2023	10/16 - 10/19/23	TRAVEL PER DIEM & MILEAGE - 2023 IGNITE NEOGOV CONFERENCE	\$254.27
Remit to: MORENO VALLEY, CA					FYTD: \$563.33
AIRESRING INC.	38579	10/11/2023	176080939	LOCAL/LONG DISTANCE CALLS & INTERNET SVC - AUG/SEP. 2023	\$2,971.75
	38709	10/18/2023	177081209	LOCAL/LONG DISTANCE CALLS & INTERNET SVC - SEPT/OCT 2023	\$3,195.40
Remit to: VAN NUYS, CA					FYTD: \$11,894.51
ALADROSS, KAMRAN	38580	10/11/2023	REIMB. 9/19/23	TRAVEL REIMBURSEMENT-TRANSPORTATION COSTS-2023 APPA BUS & FINANCE	\$41.89
Remit to: MORENO VALLEY, CA					FYTD: \$445.59

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CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
ALI, JULITTA	246477	10/18/2023	2003675.047	DEPOSIT REFUND-COTTONWOOD GOLF CTR	\$230.50
Remit to: PERRIS, CA					FYTD: \$230.50
AMERICAN FORENSIC NURSES	38581	10/11/2023	78187	PHLEBOTOMY SVCS-PD	\$1,002.75
	38710	10/18/2023	78232	PHLEBOTOMY SVCS-PD	\$66.85
Remit to: LA QUINTA, CA					FYTD: \$11,840.22

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
ANIMAL PEST MANAGEMENT SERVICES, INC.	38520	10/04/2023	704343	WEB MOPPING-SEPT.2023-ANIMAL SHELTER	\$3,607.00
		10/04/2023	704344	WEB MOPPING-SEPT.2023-ANNEX 1	
		10/04/2023	704345	WEB MOPPING-SEPT.2023-BERC	
		10/04/2023	704346	WEB MOPPING-SEPT.2023-CITY HALL	
		10/04/2023	704347	WEB MOPPING-SEPT. 2023-CITY YARD SANTIAGO	
		10/04/2023	704348	WEB MOPPING-SEPT.2023-CITY YARD	
		10/04/2023	704349	WEB MOPPING-SEPT.2023-CONFERENCE & REC CENTER	
		10/04/2023	704350	WEB MOPPING-SEPT.2023-COTTONWOOD GOLF CENTER	
		10/04/2023	704351	WEB MOPPING-SEPT.2023-EMERGENCY OPS CENTER	
		10/04/2023	704352	WEB MOPPING-SEPT.2023-FIRE STATION 2	
		10/04/2023	704353	WEB MOPPING-SEPT.2023-FIRE STATION 48	
		10/04/2023	704354	WEB MOPPING-SEPT.2023-FIRE STATION 58	
		10/04/2023	704355	WEB MOPPING-SEPT.2023-FIRE STATION 6	
		10/04/2023	704356	WEB MOPPING-SEPT.2023-FIRE STATION 65	
		10/04/2023	704357	WEB MOPPING-SEPT.2023-FIRE STATION 91	
		10/04/2023	704358	WEB MOPPING-SEPT.2023-FIRE STATION 99	
		10/04/2023	704359	WEB MOPPING-SEPT.2023-IRIS LIBRARY	
		10/04/2023	704491	WEB MOPPING-SEPT.2023-MAIN LIBRARY	
		10/04/2023	704492	WEB MOPPING-SEPT.2023-MARCH ANNEX	
		10/04/2023	704493	WEB MOPPING-SEPT. 2023-MARCH FIELD PARK	
		10/04/2023	704494	WEB MOPPING-SEPT.2023-PUBLIC SAFETY BLDG.	
		10/04/2023	704495	WEB MOPPING-SEPT.2023-TOWNGATE COMM CENTER	
		10/04/2023	704724	WEB MOPPING-SEPT.2023-SENIOR CENTER	
		10/04/2023	704725	WEB MOPPING-SEPT.2023-UTILITY FIELD OFFICE	
		10/04/2023	704727	23-1381 PLAYGROUND TREATMENT-MARCH FIELD PARK COMM CENTER	
		10/04/2023	704728	23-1482 INTERIOR PEST CONTROL SERVICE-FIRE STATION 48	
		10/04/2023	704730	23-1485 INTERIOR PAYROLL & LAND DEV. OFFICES-CITY HALL	

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Vendor Name	Check/EFT Number	Payment Date	Inv Number	Invoice Description	Payment Amount
ANIMAL PEST MANAGEMENT SERVICES, INC.	38520	10/04/2023	704731	WEB MOPPING-SEPT.2023-MALL LIBRARY	\$3,607.00
		10/04/2023	704733	23-1511 INTERIOR SERVICE FOR COCKROACHES-MAIN LIBRARY	
		10/04/2023	705204	ROUTINE PEST/BAIT STATION SERVICE-SEPT 2023-VARIOUS SITES	
		10/04/2023	705228	FLY LIGHT MAINTENANCE-SEPT.2023-ANIMAL SHELTER	
		10/04/2023	705240	FLY LIGHT MAINTENANCE-SEPT.2023-CITY YARD	
		10/04/2023	705258	FLY LIGHT MAINTENANCE-SEPT.2023-PUBLIC SAFETY BLDG. FLY	
		10/04/2023	705276	LIGHT MAINTENANCE-SEPT.2023-SENIOR CENTER	
	10/04/2023	705288	FLY LIGHT MAINTENANCE-SEPT.2023-TOWNGATE COMM CENTER		
	38711	10/18/2023	700996	PEST MANAGEMENT SERVICE-PARKS	\$2,880.00
		10/18/2023	701032	PEST MANAGEMENT SERVICE-PARKS	
10/18/2023		704726	PEST MANAGEMENT SERVICE-PARKS		
10/18/2023		704732	CITY TREE BEE SERVICE @ 24980 DELPHINIUM/M&O		
Remit to: CHINO, CA					FYTD: \$11,797.00
ANTONISSEN, JULIAN	246420	10/11/2023	10/15 - 10/20/23	TRAVEL PER DIEM - TRAFFIC COLLISION INVESTIGATION COURSE-WEEK 1	\$707.26
		10/11/2023	10/22 - 10/27/23	TRAVEL PER DIEM - TRAFFIC COLLISION INVESTIGATION COURSE-WEEK 2	
	246495	10/25/2023	10/29 - 10/30/23	TRAVEL PER DIEM - MOTOR OFFICER ADVANCED TRAINING	\$83.25
Remit to: MORENO VALLEY, CA					FYTD: \$1,401.01
ARCHITERRA DESIGN GROUP	38764	10/25/2023	31426	807 0060 PARK REHAB & REFURBISHMENT PROGRAM	\$4,750.28
		10/25/2023	31427	807 0060 PARK REHAB & REFURBISHMENT PROGRAM	
Remit to: RANCHO CUCAMONGA, CA					FYTD: \$9,100.78
ASTORGA, ANGELINA	38582	10/11/2023	REIMB. 9/23/23	TRAVEL REIMBURSEMENT - 9/23/23 - 2023 ACCELA CONFERENCE	\$64.67
Remit to: MORENO VALLEY, CA					FYTD: \$541.35

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AT&T MOBILITY	246497	10/25/2023	482013	CELL PHONE LOCATION/TRACKING SVCS-PD	\$70.00
Remit to: CAROL STREAM, IL					FYTD: \$520.00
BARBARA RUNGE DBA VIBE ENTERTAINMENT	246476	10/18/2023	2308914	MARIACHI SKELETON STILTWALKER FOR DAY OF THE DEAD EVENT 10/27/23	\$950.00
Remit to: SEAL BEACH, CA					FYTD: \$1,850.00
BAUTISTA, EDUARDO	38583	10/11/2023	7/25 - 9/30/23	MILEAGE REIMBURSEMENT	\$216.15
Remit to: MORENO VALLEY, CA					FYTD: \$216.15
BEACON ECONOMICS, LLC	246358	10/04/2023	2005004	2023 EMPLOYMENT TRENDS REPORT-EDD	\$2,750.00
Remit to: LOS ANGELES, CA					FYTD: \$2,750.00
BERLITZ LANGUAGES, INC.	38584	10/11/2023	001-274-23-02134	BILINGUAL EXAMS-JUNE & JULY 2023	\$1,700.00
		10/11/2023	001-274-23-02465	BILINGUAL EXAMS-AUGUST 2023	
Remit to: PRINCETON, NJ					FYTD: \$4,285.00
BIO-TOX LABORATORIES, INC.	246449	10/18/2023	44731	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	\$17,078.65
		10/18/2023	44732	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
		10/18/2023	44789	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
		10/18/2023	44807	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
		10/18/2023	44872	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
		10/18/2023	44873	FORENSIC TOXICOLOGY TESTING SVCS FOR PD	
Remit to: RIVERSIDE, CA					FYTD: \$50,729.37
BITWARDEN, INC.	38585	10/11/2023	30B24C23-0001	ENTERPRISE ORGANIZATION SEAT-9/15/23 TO 9/15/24-TECH SVCS	\$21,000.00
Remit to: SANTA BARBARA, CA					FYTD: \$21,000.00

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BMW MOTORCYCLES OF RIVERSIDE	38713	10/18/2023	6034392	MAINT & REPAIRS-TRAFFIC MOTORCYCLE	\$311.10
	38765	10/25/2023	6034435	MAINT & REPAIRS-TRAFFIC MOTORCYCLE	\$5,389.27
		10/25/2023	6034490	MAINT & REPAIRS-TRAFFIC MOTORCYCLE	
		10/25/2023	6034491	MAINT & REPAIRS-TRAFFIC MOTORCYCLE	
	10/25/2023	6034513	MAINT & REPAIRS-TRAFFIC MOTORCYCLE		
Remit to: RIVERSIDE, CA					<u>FYTD:</u> \$24,067.88
BOB MURRAY & ASSOCIATES	246422	10/11/2023	10278	PROFESSIONAL SVCS-EXECUTIVE RECRUITMENT-ECON DEV DIRECTOR	\$20,418.45
		10/11/2023	10279	PROFESSIONAL SVCS-EXECUTIVE RECRUITMENT-HR DIRECTOR	
	246498	10/25/2023	10327	PROFESSIONAL SVCS-EXECUTIVE RECRUITMENT-ECON DEV DIRECTOR	\$2,914.33
		10/25/2023	10328	PROFESSIONAL SVCS-EXECUTIVE RECRUITMENT-HR DIRECTOR	
Remit to: ROSEVILLE, CA					<u>FYTD:</u> \$48,140.03
BOVADILLA, MARLEN	38586	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00

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BOX SPRINGS MUTUAL WATER COMPANY	246359	10/04/2023	1084-1 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	\$548.98
		10/04/2023	1085-1 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	1086-1 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	1087-1 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	1088-1 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	189-13 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	195-5 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	204-9 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	331-1 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	36-1 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	45-4 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
		10/04/2023	721-1 9/29/23	WATER USAGE-TOWNGATE-SEPTEMBER 2023	
		10/04/2023	80-4 9/29/23	WATER ASSESSMENT ON VACANT LOTS OWNED BY THE HOUSING AUTHORITY	
Remit to: MORENO VALLEY, CA					FYTD: \$2,030.56

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BRAUN BLAISING SMITH WYNNE, P.C.	38587	10/11/2023	21395	LEGAL SERVICES-MV UTILITY-AUGUST 2023	\$302.14
	38714	10/18/2023	21452	LEGAL SERVICES-MV UTILITY-SEPTEMBER 2023	\$399.70
Remit to: SACRAMENTO, CA					FYTD: \$4,195.58
BRIGHTON HILL ACADEMY SPORTS AND LEARNING CENTER	38715	10/18/2023	SUMMER 2023	INSTRUCTOR SERVICES - FIRST TEE INLAND EMPIRE GOLF CLASSES	\$364.00
Remit to: SUN CITY, CA					FYTD: \$364.00
BROOKS, ROBERT	246526	10/25/2023	CIT.# C31596	REFUND ADMIN CITATION FEE - DISMISSED	\$1,000.00
Remit to: CYPRESS, CA					FYTD: \$1,000.00
BROSIOUS, NICOLE	246478	10/18/2023	R23-174449	ANIMAL SERVICES REFUND S/N DEPOSIT	\$75.00
Remit to: MORENO VALLEY, CA					FYTD: \$75.00
BUBNICK, JEREMY D	38521	10/04/2023	10/9 - 10/12/23	TRAVEL PER DIEM - 2023 NRPA ANNUAL CONFERENCE	\$241.50
Remit to: MORENO VALLEY, CA					FYTD: \$241.50
CABRERA, ULISES	246450	10/18/2023	9/19 - 9/21/23	TRAVEL PER DIEM - 2023 CAL CITIES CONFERENCE & EXPO	\$172.50
Remit to: MORENO VALLEY, CA					FYTD: \$172.50
CALIFORNIA BUILDING STANDARDS COMMISSION	246499	10/25/2023	3RD QTR 2023	SB 1473 FEES COLLECTED FOR 7/1-9/30/23	\$3,349.80
Remit to: SACRAMENTO, CA					FYTD: \$10,269.00
CALIFORNIA CONSULTING, INC	38716	10/18/2023	6296	GRANT WRITING SERVICES- SGC: COMMUNITY RESILIENCE CENTERS	\$7,155.00
Remit to: EL SEGUNDO, CA					FYTD: \$20,655.00

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CALIFORNIA DEPT. OF TAX AND FEE ADMINISTRATION	38958	10/31/2023	3RD QTR 2023	ACCT# 031-000177 ELECTRICAL ENERGY SURCHARGE RETURN/JUL-SEP 2023	\$19,459.00
Remit to: SACRAMENTO, CA					FYTD: \$32,527.00
CALIFORNIA NEWSPAPERS PARTNERSHIP	38717	10/18/2023	5209144-00574311	LEGAL NOTICES-PLANNING/GRANTS/FMS/CITY CLERKS	\$13,072.83
		10/18/2023	DB38BEAC-0036	AD #0011620050/ACCT #5209144-PBLC HEARING NTC-PLANNING	
		10/18/2023	DB38BEAC-0037	AD #0011620163/ACCT #5209144-PBLC HEARING NTC-PLANNING	
		10/18/2023	DB38BEAC-0038	AD #0011620650/ACCT #5209144-PBLC HEARING NTC-PLANNING	
		10/18/2023	DB38BEAC-0039	AD #0011620651/ACCT #5209144-PBLC HEARING NTC-PLANNING	
		10/18/2023	DB38BEAC-0040	AD #0011621110/ACCT #5209144-PBLC HEARING NTC-PLANNING	
		10/18/2023	DB38BEAC-0043	AD #0011622544/ACCT #5209144-PBLC HEARING NTC-PLANNING	
Remit to: WILLOUGHBY, OH					FYTD: \$15,897.45
CALLEJAS, MICHELLE	246373	10/04/2023	2003566.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$84.50
Remit to: HEMET, CA					FYTD: \$84.50
CAMERON-DANIEL, P.C.	38766	10/25/2023	1428	LEGAL SERVICES-MV UTILITY-JUNE 2023	\$2,135.00
Remit to: SEBASTOPOL, CA					FYTD: \$23,487.50
CANDELARIA, JENNIFER	246374	10/04/2023	2003567.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$5.00
Remit to: MORENO VALLEY, CA					FYTD: \$5.00
CARDOSO, CYNTHIA	246375	10/04/2023	2003568.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$15.50
Remit to: NORTH FRANKLIN, CT					FYTD: \$15.50
CAROFF, MICHAEL	246523	10/25/2023	OCT. 27, 2023	SAVOR THE BAND-2023 DAY OF THE DEAD EVENT PERFORMANCE 10/27/23	\$2,650.00
Remit to: SAN DIEGO, CA					FYTD: \$2,650.00

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CARROLL, CHELSEA	246376	10/04/2023	2003569.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$61.50
Remit to: CHATTANOOGA, TN					FYTD: \$61.50
CARROLL, TIMOTHY	38588	10/11/2023	10/02 - 10/06/23	TRAVEL PER DIEM - 2023 NATOA ANNUAL CONFERENCE & AWARDS BANQUET	\$333.00
Remit to: MORENO VALLEY, CA					FYTD: \$333.00
CART GUY LLC DBA THE CART GUY	38522	10/04/2023	R23060	GOLF CART RENTALS-EL GRITO 9/15/23-PARKS	\$702.08
Remit to: BANNING, CA					FYTD: \$3,974.48
CASC ENGINEERING AND CONSULTING, INC.	38589	10/11/2023	0049551	PLAN CHECK SVCS-PWQMP-AUGUST 2023	\$1,505.00
	38767	10/25/2023	0049687	801 0108 DESIGN - EUCALYPTUS JULY 2023	\$4,353.95
Remit to: COLTON, CA					FYTD: \$37,653.03
CASTELLON, NANCY	246377	10/04/2023	2003570.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$20.50
Remit to: MORENO VALLEY, CA					FYTD: \$20.50
CASTRO, CARLOS	246479	10/18/2023	CIT.# C23792	REFUND FTB INTERCEPT COLLECTED FOR DISMISSED ADMIN CITATION FEE	\$1,481.00
Remit to: MORENO VALLEY, CA					FYTD: \$1,481.00
CASTRO, JENNIFER	38590	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
CELIS, NYDIA	246378	10/04/2023	2003571.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$19.50
Remit to: MORENO VALLEY, CA					FYTD: \$19.50

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CERVANTES, ANA	246379	10/04/2023	2003572.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$50.50
Remit to: RIVERSIDE, CA					FYTD: \$50.50
CHANDLER ASSET MANAGEMENT, INC	38591	10/11/2023	2309MORENOVA	INVESTMENT MANAGEMENT SVCS-SEPTEMBER 2023	\$8,762.46
Remit to: SAN DIEGO, CA					FYTD: \$35,008.61
CHARLES ABBOTT ASSOCIATES, INC	38592	10/11/2023	66247	PLAN CHECK SVCS-TR38236/PEN21-0184-AUGUST 2023	\$924.00
Remit to: MISSION VIEJO, CA					FYTD: \$194,924.00
CHARLES, AUTUME	246380	10/04/2023	2003573.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$17.25
Remit to: RIALTO, CA					FYTD: \$17.25
CHARTER COMMUNICATIONS HOLDINGS, LLC	38524	10/04/2023	091922301090123	FIBER INTERNET ACCESS SERVICES - SEP. 2023	\$844.00
	38768	10/25/2023	0007991101523	CABLE - MONTHLY SERVICE CHARGES CITYWIDE-SEP/OCT. 2023	\$2,911.88
	38769	10/25/2023	091922301100123	FIBER INTERNET ACCESS SERVICES - OCT. 2023	\$844.00
Remit to: PITTSBURGH, PA					FYTD: \$17,862.26
CHAVEZ, SANDRA	38593	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
CHOYCE, ANNA MARLIN	38594	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
	246414	10/04/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00

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CHRIS ALAN VOGT DBA CAV CONSULTING	38770	10/25/2023	21063	PROJECT MANAGER CONSULTING SERVICES (CPD)	\$18,174.00
Remit to: RIVERSIDE, CA					FYTD: \$79,076.00
CINTAS CORPORATION NO. 2	38595	10/11/2023	4168811933	UNIFORM RENTAL & LAUNDERING SRVS FY 23/24	\$1,450.50
	38719	10/18/2023	4169456312	UNIFORM RENTAL & LAUNDERING SRVS FY 23/24	\$2,951.72
		10/18/2023	4170152955	UNIFORM RENTAL & LAUNDERING SRVS FY 23/24	
	38771	10/25/2023	4170892180	UNIFORM RENTAL & LAUNDERING SRVS FY 23/24	\$1,491.06
Remit to: CINCINNATI, OH					FYTD: \$27,601.70
CIVIC SOLUTIONS, INC	38720	10/18/2023	073123	PLANNING ENTITLEMENT AND PLAN CHECK SVCS-JULY 2023	\$14,859.00
Remit to: MISSION VIEJO, CA					FYTD: \$29,721.50
COATS, DAVID	38596	10/11/2023	SEP. 2023	INSTRUCTOR SERVICES - SHITO-RYU KARATE CLASSES	\$507.00
Remit to: MORENO VALLEY, CA					FYTD: \$1,965.00
COLONIAL SUPPLEMENTAL INSURANCE	38597	10/11/2023	E7133069	BACK PREMIUMS 11/17/22-4/20/23 - SILVAS	\$260.81
Remit to: COLUMBIA, SC					FYTD: \$25,861.45
CORODATA MEDIA STORAGE INC.	38600	10/11/2023	DS1306556	OFF-SITE MEDIA STORAGE-SEPTEMBER 2023	\$486.28
Remit to: LOS ANGELES, CA					FYTD: \$2,085.30
CORONA, NATALIE	38601	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
CORTES, MARI	246381	10/04/2023	2003574.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$20.50
Remit to: MORENO VALLEY, CA					FYTD: \$20.50

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
COSTAR REALTY INFORMATION, INC	38603	10/11/2023	120456163	COMMERCIAL REAL ESTATE DATABASE SVC-OCTOBER 2023	\$1,718.26
Remit to: CHICAGO, IL					FYTD: \$6,873.04
COUNSELING TEAM, THE	246360	10/04/2023	88240	EMPLOYEE ASSISTANCE PROGRAM-SEPTEMBER 2023	\$1,950.00
	246500	10/25/2023	88553	EMPLOYEE ASSISTANCE PROGRAM-OCTOBER 2023	\$1,950.00
Remit to: SAN BERNARDINO, CA					FYTD: \$9,635.00
COUNTRY SQUIRE MOBILE ESTATES	246382	10/04/2023	PEN22-0217	REFUND OF FEES DUE FOR WITHDRAWN PROJECT-ENTITLEMENT PEN22-0217	\$5,831.40
Remit to: ONTARIO, CA					FYTD: \$5,831.40
COUNTS UNLIMITED, INC.	38721	10/18/2023	23727	TRAFFIC DATA COLLECTION-TRANSPORTATION	\$940.00
		10/18/2023	23728	TRAFFIC DATA COLLECTION-TRANSPORTATION	
		10/18/2023	23735	TRAFFIC DATA COLLECTION-TRANSPORTATION	
		10/18/2023	23841	TRAFFIC DATA COLLECTION-TRANSPORTATION	
		10/18/2023	23878	TRAFFIC DATA COLLECTION-TRANSPORTATION	
Remit to: CORONA, CA					FYTD: \$15,100.00

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COUNTY OF RIVERSIDE	246423	10/11/2023	AC0000002001	LAFCO FEES FY 23/24	\$23,759.88	
	246424	10/11/2023	3934	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 120	\$700.00	
		10/11/2023	3935	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 121		
		10/11/2023	3937	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 125		
		10/11/2023	3942	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 127		
		10/11/2023	3952	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 94		
		10/11/2023	3953	REGISTERED VOTERS CONFIRMATION-CFD NO. 2014-01/AMENDMENT NO. 83		
		10/11/2023	3954	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 122		
		10/11/2023	3955	REGISTERED VOTERS CONFIRMATION-CFD NO. 2014-01/AMENDMENT NO. 84		
		10/11/2023	3956	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 123		
		10/11/2023	3957	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 124		
		246451	10/18/2023	3960	REGISTERED VOTERS CONFIRMATION-CFD NO. 2021-01/AMENDMENT NO. 107	\$70.00
		246501	10/25/2023	PE0000001301	TRAFFIC MOTOR COMMUNICATIONS FOR PD 9/1-9/30/23	\$1,915.62
Remit to: RIVERSIDE, CA					FYTD: \$47,393.50	
COUNTY OF RIVERSIDE SHERIFF	38525	10/04/2023	SH0000044216	TOBACCO GRANT BILLING - BP 8/10/23-8/23/23	\$5,115.46	
		10/04/2023	SH0000044217	TOBACCO GRANT BILLING - BP 8/24/23-9/06/23		
		10/04/2023	SH0000044218	TOBACCO GRANT BILLING - BP 9/07/23-9/20/23		
Remit to: RIVERSIDE, CA					FYTD: \$15,068,183.86	

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CRASH DATA GROUP, INC	38772	10/25/2023	INV12588	HYUNDAI/KIA EDR DLC KIT-POLICE	\$9,839.00
Remit to: TEMECULA, CA					FYTD: \$11,339.00
CRIME SCENE STERI-CLEAN, LLC	38773	10/25/2023	43909	BIO HAZARD REMOVAL SERVICE	\$250.00
Remit to: RANCHO CUCAMONGA, CA					FYTD: \$3,350.00
CROWN CASTLE FIBER LLC	38604	10/11/2023	1427100	INTERNET & DATA SVCS 10/01/23-10/31/23	\$1,250.00
Remit to: HOUSTON, TX					FYTD: \$5,018.75
CWE CORP.	38605	10/11/2023	23378	PLAN CHECK SVCS-PWQMP-AUGUST 2023	\$2,676.50
Remit to: FULLERTON, CA					FYTD: \$12,159.50
DATA TICKET, INC.	38722	10/18/2023	157693	ADMIN CITATION PROCESSING-PD-SEPTEMBER 2023	\$164.02
Remit to: IRVINE, CA					FYTD: \$126,069.56
DDL TRAFFIC INC.	38606	10/11/2023	8617	GTT 764 PHASE SELECTOR (2)-TRANSPORTATION	\$6,777.48
Remit to: CHINO HILLS, CA					FYTD: \$10,645.71
DE GUZMAN, JAHIRO	38607	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
DELOERA, MONICA	246383	10/04/2023	2003575.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$20.50
Remit to: MORENO VALLEY, CA					FYTD: \$20.50
DELTA DENTAL OF CALIFORNIA	38526	10/04/2023	BE005704578	EMPLOYEE DENTAL INSURANCE-PPO	\$17,843.90
	38527	10/04/2023	BE005705353	EMPLOYEE DENTAL INSURANCE-HMO	\$3,651.66
Remit to: LOS ANGELES, CA					FYTD: \$101,796.84

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DEPARTMENT OF CONSERVATION	246502	10/25/2023	3RD QTR 2023	SMI FEES REPORT-3RD QTR ENDING 9/30/23	\$5,877.23
Remit to: SACRAMENTO, CA					FYTD: \$24,463.85
DEPARTMENT OF ENVIRONMENTAL HEALTH	246503	10/25/2023	IN0493397	VECTOR CONTROL SERVICES JUL-SEP. 2023	\$14,951.55
Remit to: RIVERSIDE, CA					FYTD: \$25,190.65
DEPARTMENT OF TRANSPORTATION	38775	10/25/2023	24001798	DIRECT PAY 801 0021 SR-60/MO BEACH IC DEPT FURNISHED MATERIALS	\$27.84
Remit to: SACRAMENTO, CA					FYTD: \$274.96
DIAMOND ENVIRONMENTAL SERVICES, LP	246452	10/18/2023	0004965760	PORTABLE RESTROOM RENTAL-POLICE DEPT	\$92.52
	246504	10/25/2023	0004974451	PORTABLE RESTROOM RENTAL-MAINT & OP'S	\$449.71
Remit to: SAN MARCOS, CA					FYTD: \$17,658.12
DIAZ, ROLAND	38608	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
	246415	10/04/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
DIVISION OF THE STATE ARCHITECT	246425	10/11/2023	3RD QTR 2023-786	STATE PORTION-DISABILITY ACCESS & EDUCATION FEE REPORT 786	\$184.70
Remit to: SACRAMENTO, CA					FYTD: \$477.90
DOOLEY, BIANCA	246384	10/04/2023	R23-176229	ANIMAL SERVICES REFUND S/N AND RAB DEP	\$95.00
Remit to: SAN DIEGO, CA					FYTD: \$95.00

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E.R. BLOCK PLUMBING & HEATING, INC.	38610	10/11/2023	140121	BACKFLOW DEVICE TEST-FIRE STATION 58	\$160.00
		10/11/2023	140231	BACKFLOW DEVICE TEST-MAIN LIBRARY	
		10/11/2023	140233	BACKFLOW DEVICE TEST-FIRE STATION 58	
	38723	10/18/2023	140126	BACKFLOW DEVICE TEST-PARKS	\$1,602.75
		10/18/2023	140291	BACKFLOW DEVICE TEST-PARKS	
	38776	10/18/2023	140387	BACKFLOW DEVICE REPAIRS-MAIN LIBRARY	
		10/25/2023	140127	SD BACKFLOW TESTING BASE SEPTEMBER	\$480.00
Remit to: RIVERSIDE, CA					FYTD: \$10,690.75
EDGEMONT COMMUNITY SERVICES DISTRICT	246506	10/25/2023	24-01	FY23/24 LIGHTING USER FEES-APN 291-250-005 & 291-191-029	\$889.36
		10/25/2023	24-02	FY23/24 SEWER USER FEES-APN 291-250-005	
Remit to: RIVERSIDE, CA					FYTD: \$889.36
ELKINS, DEBORAH	38529	10/04/2023	SEP. 2023	INSTRUCTOR SERVICES - ADAPTIVE ZUMBA CLASS	\$34.20
Remit to: MORENO VALLEY, CA					FYTD: \$228.00
ENCO UTILITY SERVICES MORENO VALLEY LLC	38724	10/18/2023	INV62066	SOLAR SYSTEM INSPECTION	\$1,515.00
		10/18/2023	INV62067	SOLAR SYSTEM INSPECTION	
		10/18/2023	INV62068	SOLAR SYSTEM INSPECTION	
		10/18/2023	INV62069	SOLAR SYSTEM INSPECTION	
		10/18/2023	INV62070	SOLAR SYSTEM INSPECTION	
	38777	10/25/2023	40-553A-01	WA# 40-553A-TR 28871 STREETLIGHTS	\$16,014.03
		10/25/2023	40-557A-01	WA# 40-557A-MOSS BROS CORPORATE OFFICE	
		10/25/2023	40-559A-01	WA# 40-559A-MORENO VALLEY BUSINESS CENTER 5	
		10/25/2023	INV61043	METER FEES-ALDI/HABIT BURGER/MV RESOURCE CTR-MV UTILITY	
Remit to: ANAHEIM, CA					FYTD: \$3,698,798.53

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ENTERPRISE SOLUTIONS CONSULTING, LLC	38612	10/11/2023	MVU-2023-10	CONSULTING SERVICE-MV UTILITIES	\$6,000.00
Remit to: WEBSTER, NY					FYTD: \$24,000.00
ESCOBAR, EDGAR	246385	10/04/2023	2003578.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$126.29
Remit to: REDLANDS, CA					FYTD: \$126.29
ESCRIBE SOFTWARE LTD	246426	10/11/2023	3619	PRIVATE TRAINING AND PROFESSIONAL SERVICE FEE-TECH SVCS	\$7,920.00
	246507	10/25/2023	4013	PRO APPLICATION LICENSES-NOV 2023 TO JUNE 2024-TECH SVCS	\$583.35
Remit to: INDIANAPOLIS, IN					FYTD: \$61,013.35
ESPINOZA, RAQUEL	246480	10/18/2023	464; 661;662;663	ACTIVITY REFUND- VALLEY DAY CAMP	\$330.02
Remit to: MORENO VALLEY, CA					FYTD: \$330.02
ESPINOZA, ROSA	246447	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$500.00
		10/11/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
ESTRADA, TANIA	246386	10/04/2023	2003579.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$100.00
Remit to: MORENO VALLEY, CA					FYTD: \$100.00
EXCLUSIVE TOWING	246427	10/11/2023	23-22204	EVIDENCE VEHICLE TOWING-PD	\$702.50
		10/11/2023	23-22219	EVIDENCE VEHICLE TOWING-PD	
	246454	10/18/2023	23-22261	EVIDENCE VEHICLE TOWING-PD	\$281.00
	246508	10/25/2023	23-22332	EVIDENCE VEHICLE TOWING-PD	\$421.50
Remit to: RIVERSIDE, CA					FYTD: \$5,339.00
FAVELA, JULIO	246387	10/04/2023	2003580.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$5.00
Remit to: MORENO VALLEY, CA					FYTD: \$5.00

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FELLOWS, AUNDRANIQUE	246388	10/04/2023	2003581.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$50.00
Remit to: N LAS VEGAS, NV					<u>FYTD:</u> \$50.00
FERNANDEZ, MIA	246389	10/04/2023	2003582.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$31.50
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$31.50
FERRELLGAS LP	246428	10/11/2023	2034000555	PROPANE REFILL-CITY YARD	\$1,921.83
Remit to: DENVER, CO					<u>FYTD:</u> \$2,360.84
FINANDER, MARLENE	246390	10/04/2023	2003583.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$81.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$81.00
FIRST AMERICAN DATA TREE, LLC	246429	10/11/2023	20027760923	ONLINE SOFTWARE SUBSCRIPTION-SEPTEMBER 2023	\$99.00
Remit to: PASADENA, CA					<u>FYTD:</u> \$396.00
FLOCK GROUP INC. DBA FLOCK SAFETY	38613	10/11/2023	INV-21902	CAMERA & POLE REPLACEMENT-TECH SVCS	\$1,300.00
Remit to: ATLANTA, GA					<u>FYTD:</u> \$498,531.51
FLORES, CYNTHIA	246391	10/04/2023	2003584.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$50.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$50.00
FLOREZ, LAURA	246392	10/04/2023	2003585.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$10.00
Remit to: PERRIS, CA					<u>FYTD:</u> \$10.00
FRONTIER COMMUNICATIONS	246430	10/11/2023	062221-5/OCT23	COMMUNICATION SVCS-09/28/23-10/27/23	\$1,290.00
	246509	10/25/2023	081095-5/OCT23	FOREIGN EXCHANGE BUS LISTING-MV UTILITY	\$7.13
Remit to: CINCINNATI, OH					<u>FYTD:</u> \$64,849.75

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G/M BUSINESS INTERIORS, INC.	38778	10/25/2023	0289391-IN	HERMAN MILLER DESK & WORKSTATION-TECH SVCS	\$3,461.79
Remit to: RIVERSIDE, CA					FYTD: \$25,140.14
G3 QUALITY INC	38614	10/11/2023	14758	801 0090 CITYWIDE PVT REHAB PROG FY22/23	\$17,785.40
	38779	10/25/2023	14759	FREEWAY INSPECTION & REPORT PREP-AUGUST 2023-MAINT & OP'S	\$7,725.00
		10/25/2023	15012	FREEWAY INSPECTION & REPORT PREP-SEPTEMBER 2023-MAINT & OP'S	
Remit to: CERRITOS, CA					FYTD: \$135,685.53
GALLS INC., INLAND UNIFORM	38530	10/04/2023	025602671	POLO SHIRTS-ANIMAL SVCS	\$339.52
	38615	10/11/2023	025800835	RETURN FOR VAS-UNIFORM CUSTOMIZATION-ANIMAL SVCS	\$3.26
Remit to: CHICAGO, IL					FYTD: \$5,179.34
GAMEZ, HANNAH	38616	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
GARCIA, MATHEW ANTONIO	246455	10/18/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
GARDAWORLD	38780	10/25/2023	10755927	ARMORED CAR SVC-CITY HALL, CONF & REC, MVU, LIBRARY, & ANML SVCS	\$1,230.28
		10/25/2023	20582383	ARMORED CAR SVC-CONF & REC, LIBRARY, & ANIMAL SVC	
Remit to: CHICAGO, IL					FYTD: \$4,946.17
GEMMELL, KEITH	38725	10/18/2023	9/5 - 9/7/23	TRAVEL PER DIEM - 2023 CWA MEETING OF THE MINDS	\$185.00
Remit to: MORENO VALLEY, CA					FYTD: \$185.00

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GLADWELL GOVERNMENTAL SVCS, INC.	246456	10/18/2023	5224	SCANNING PREP RE ANALYSIS & RECOMMENDATIONS-PLANNING	\$420.00
Remit to: LAKE ARROWHEAD, CA					FYTD: \$2,220.00
GLOBAL POWER GROUP, INC.	246457	10/18/2023	90260	GENERATOR REPAIR-ANIMAL SHELTER	\$5,330.42
		10/18/2023	91007	GENERATOR MAINTENANCE & REPAIR-CITY HALL	
		10/18/2023	91008	GENERATOR MAINTENANCE & REPAIR-CONFERENCE & REC CENTER	
		10/18/2023	91057	GENERATOR MAINTENANCE & REPAIR-FIRE STATION 58	
		10/18/2023	91058	GENERATOR MAINTENANCE & REPAIR-FIRE STATION 6	
		10/18/2023	91175	GENERATOR MAINTENANCE & REPAIR-FIRE STATION 2	
		10/18/2023	91176	GENERATOR MAINTENANCE & REPAIR-FIRE STATION 48	
		10/18/2023	91177	GENERATOR MAINTENANCE & REPAIR-CITY YARD	
		10/18/2023	91189	GENERATOR MAINTENANCE & REPAIR-ANIMAL SHELTER	
		10/18/2023	91215	GENERATOR REPAIR-FIRE STATION 2	
		10/18/2023	91372	GENERATOR REPAIR-ANIMAL SHELTER	
Remit to: LAKESIDE, CA					FYTD: \$5,330.42
GONZALEZ, CLAUDIA	246481	10/18/2023	2003677.047	DEPOSIT REFUND-TOWNGATE COMM. CTR	\$230.50
Remit to: MORENO VALLEY, CA					FYTD: \$230.50
GONZALEZ, MAYRA	38531	10/04/2023	10/9 - 10/12/23	TRAVEL PER DIEM - 2023 NRPA ANNUAL CONFERENCE	\$241.50
Remit to: MORENO VALLEY, CA					FYTD: \$241.50
GREAT DANES AND FRIENDS RESCUE	246393	10/04/2023	R23-177194	ANIMAL SERVICES REFUND VET FEES	\$40.00
Remit to: VAN NUYS, CA					FYTD: \$40.00

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GREER, VICTOR	38782	10/25/2023	REISSUE RETD EFT	REISSUE OF DIRECT DEPOSIT RETURNED - BANK ACCOUNT WAS CLOSED	\$206.04
Remit to: MORENO VALLEY, CA					FYTD: \$206.04
GUTIERREZ, MARIANA	38618	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
	246416	10/04/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
GWORKS - GIS WORKSHOP, LLC	38726	10/18/2023	2019-17046	MAINTENANCE & SUPPORT 7/1/23-6/30/24	\$1,361.00
Remit to: OMAHA, NE					FYTD: \$1,361.00
HABITAT FOR HUMANITY RIVERSIDE	38727	10/18/2023	CHR22-INV14	HOME-CRITICAL HOME REPAIR PROGRAM-AUGUST 2023	\$22,627.86
		10/18/2023	CHR22-INV15	HOME-CRITICAL HOME REPAIR PROGRAM-SEPTEMBER 2023	
Remit to: RIVERSIDE, CA					FYTD: \$102,554.83
HARGIS, STEVE	38532	10/04/2023	REIMB. 9/27/23	TRAVEL REIMBURSEMENT - 9/27/23 - 2023 MISAC TRAINING CONF	\$543.63
Remit to: MORENO VALLEY, CA					FYTD: \$785.13
HATZL-PATTERSON, NINA MICHELE	38728	10/18/2023	10/25 - 10/27/23	TRAVEL PER DIEM & MILEAGE - 2023 ICSC @WESTERN SAN DIEGO CONF	\$239.37
Remit to: MORENO VALLEY, CA					FYTD: \$239.37
HDL COREN & CONE	246363	10/04/2023	SIN030206	CONTRACT SVCS-PROPERTY TAX SOFTWARE MAINT (JULY-SEPT 2023)	\$6,760.00
Remit to: BREA, CA					FYTD: \$6,760.00

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CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
HENDRICKS, NICOLE	38533	10/04/2023	10/9 - 10/12/23	TRAVEL PER DIEM - 2023 NRPA ANNUAL CONFERENCE	\$241.50
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$241.50
HERC RENTALS INC/ HERTZ EQUIPMENT RENTAL	38783	10/25/2023	33990051-002	SKIDSTEER LOADER RENTAL-MAINT & OPS	\$615.52
Remit to: DALLAS, TX					<u>FYTD:</u> \$615.52
HERNANDEZ, MAURICIO	38619	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
HERNANDEZ, MONICA	38620	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
HERRERA, TAYLOR	246442	10/11/2023	R23-177485	ANIMAL SERVICES REFUND S/N DEPOSIT	\$75.00
Remit to: SEATTLE, WA					<u>FYTD:</u> \$75.00
HERRERA, VANESSA	246394	10/04/2023	R23-177050	ANIMAL SERVICES REFUND LICENSE OVERPAY	\$52.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$52.00
HLP, INC.	38534	10/04/2023	190549	WEB LICENSE MONTHLY SVC FEE-ANIMAL SVCS	\$73.15
	38729	10/18/2023	190701	WEB LICENSE MONTHLY SVC FEE-ANIMAL SVCS	\$59.50
Remit to: LITTLETON, CO					<u>FYTD:</u> \$259.00
HOLMAN, JENA	246395	10/04/2023	2003587.047	ACTIVENET CREDIT ON ACCOUNT REFUNDS	\$105.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$105.00

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CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
HR GREEN PACIFIC INC.	38621	10/11/2023	162997	801 0096 CITYWIDE PAVEMENT REHABILITATION PROGRAM (FY21/22-25/26	\$20,464.00
		10/11/2023	163627	801 0096 CITYWIDE PAVEMENT REHABILITATION PROGRAM (FY21/22-25/26	
		10/11/2023	164654	801 0096 CITYWIDE PAVEMENT REHABILITATION PROGRAM (FY21/22-25/26	
		10/11/2023	165641	801 0096 CITYWIDE PAVEMENT REHABILITATION PROGRAM (FY21/22-25/26	
Remit to: DES MOINES, IA					<u>FYTD:</u> \$68,256.50
HUIZAR, ROSEMARY	38622	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
HUNTER CONSULTING INC. DBA HCI ENVIRONMENTAL & ENG	38535	10/04/2023	36814	HAZARDOUS WASTE ANTIFREEZE REMOVAL FOR FLEET-CITY YARD	\$341.53
		38730	10/18/2023	37114	SECOND CLEANING WASH RACK CLARIFIER CLEAN OUT-CITY YARD	$1,856.04
Remit to: CORONA, CA					<u>FYTD:</u> \$12,050.69
INLAND EMPIRE PROPERTY SERVICE, INC	38731	10/18/2023	40219	NUISANCE ABATEMENT SVCS-APN 486-082-028-CODE	\$6,413.00
		10/18/2023	40220	NUISANCE ABATEMENT SVCS-26167 ELDER-CODE	
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$104,959.25
INTERPRETERS UNLIMITED	38784	10/25/2023	363974	LANGUAGE INTERPRETATION SERVICES-PHONE-SEPTEMBER 2023	\$12.00
Remit to: SAN DIEGO, CA					<u>FYTD:</u> \$12.00

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
INTERWEST CONSULTING GROUP, INC.	38536	10/04/2023	90496	PLAN CHECK SVCS-PEN22-0163/CHASE MV BUS CTR-JULY 2023	\$17,760.00
		10/04/2023	90497	PLAN CHECK SVCS-PEN21-0329/330/STUDIO 6 HOTEL-JULY 2023	
		10/04/2023	90499	PLAN CHECK SVCS-PEN22-0088/CHASE MV BUS CTR-JULY 2023	
		10/04/2023	90502	PLAN CHECK SVCS-PEN22-0161/CHASE MV BUS CTR-JULY 2023	
		10/04/2023	90507	PLAN CHECK SVCS-TR24301/PEN20-0116-KIMBERLY AVE-JULY 2023	
		10/04/2023	90511	PLAN CHECK SVCS-TR38265/PACIFIC INVESTMENTS-JULY 2023	
		10/04/2023	91205	PLAN CHECK SVCS-PEN22-0088/CHASE MV BUS CTR-AUGUST 2023	
		10/04/2023	91206	PLAN CHECK SVCS-PEN22-0092/CHASE MV BUS CTR-AUGUST 2023	
		10/11/2023	90495	PLAN CHECK SVCS-PEN21-0133/ATWOOD FIVE-PLEX DEV-JULY 2023		$13,330.00
	10/11/2023	90498	PLAN CHECK SVCS-PEN22-0022/CRYSTAL COVE APTS-JULY 2023		
	10/11/2023	90500	PLAN CHECK SVCS-PEN22-0092/CHASE MV BUS CTR-JULY 2023		
	10/11/2023	90501	PLAN CHECK SVCS-PEN22-0130/1/SUNSET CROSSINGS-JULY 2023		
	10/11/2023	90503	PLAN CHECK SVCS-PEN22-0256/HOME2HILTON HOTEL-JULY 2023		
	10/11/2023	90504	PLAN CHECK SVCS-PM38325/COMPASS DANBE-JULY 2023		
	10/11/2023	90505	PLAN CHECK SVCS-PM38395/PATRIOT PARTNERS-JULY 2023		
10/11/2023	90506	PLAN CHECK SVCS-TR38236/DR HORTON PH 1&2-JULY 2023			
10/11/2023	90508	PLAN CHECK SVCS-TR38123/DR HORTON-JULY 2023			
10/11/2023	90509	PLAN CHECK SVCS-TR38123/DR HORTON-JULY 2023			
10/11/2023	90510	PLAN CHECK SVCS-TR38236/DR HORTON-JULY 2023			

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
INTERWEST CONSULTING GROUP, INC.	38732	10/18/2023	91207	PLAN CHECK SVCS-PEN22-0130/1/SUNSET CROSSINGS-AUGUST 2023	\$16,912.50
		10/18/2023	91208	PLAN CHECK SVCS-PM37662/CHASE PARTNERS-AUGUST 2023	
		10/18/2023	91209	PLAN CHECK SVCS-TR38236/DR HORTON-AUGUST 2023	
		10/18/2023	91210	PLAN CHECK SVCS-TR38123/DR HORTON-AUGUST 2023	
		10/18/2023	91211	PLAN CHECK SVCS-TR38236/DR HORTON-AUGUST 2023	
		10/18/2023	91212	PLAN CHECK SVCS-TR38265/PACIFIC INVESTMENTS-AUGUST 2023	
		10/18/2023	91534	SENIOR ENGINEER CONSULTING SERVICES (LDD)-SEPTEMBER 2023	
		10/18/2023	91536	PLAN CHECK SVCS-PEN22-0163/CHASE MV BUS CTR-SEPTEMBER 2023	
		10/18/2023	91537	PLAN CHECK SVCS-PEN22-0161/CHASE MV BUS CTR-SEPTEMBER 2023	
	10/18/2023	91541	PLAN CHECK SVCS-TR38265/PACIFIC INVESTMENTS-SEPTEMBER 2023		
Remit to: LOVELAND, CO					FYTD: \$79,152.50
IS5 COMMUNICATIONS INC.	38785	10/25/2023	INV012732	DEVICE FIRMWARE CONFIGURATION SERVICES - TRAINING FEE	\$3,000.00
Remit to: MISSISSAUGA, ON					FYTD: \$3,000.00
ISLAMIC ACADEMY OF RIVERSIDE	246482	10/18/2023	2003682.047	INSURANCE OVERPAYMENT REFUND-SR. CTR	\$100.00
Remit to: MORENO VALLEY, CA					FYTD: \$100.00
ISRAEL IBARRA DBA WORLD FAMOUS TACOS	38537	10/04/2023	1092	DEPOSIT FOR CATERING 4/17/24 RIGHT-OF-WAY TRAINING EVENT	\$960.00
	38572	10/09/2023	1099	DEPOSIT FOR CATERING- 10/11/23 BENEFITS FAIR EVENT	\$1,750.00
	38624	10/11/2023	1099 (BALANCE)	BALANCE DUE FOR CATERING 10/11/23 BENEFITS FAIR EVENT	\$1,750.00
Remit to: MORENO VALLEY, CA					FYTD: \$4,460.00

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JACOBS ENGINEERING GROUP, INC.	38733	10/18/2023	W9Y51100-08	808 0004 TRAFFIC SIGNAL COORDINATION PROGRAM	\$4,230.00
Remit to: DALLAS, TX					FYTD: \$36,760.00
JAIMES, ARMANDO	246483	10/18/2023	R23-177598	ANIMAL SERVICES REFUND LICENSE OVERPAY	\$54.00
	246484	10/18/2023	R23-177599	ANIMAL SERVICES REFUND LICENSE OVERPAY	\$54.00
Remit to: MORENO VALLEY, CA					FYTD: \$108.00
JAMES, XIOMARA ANGELA	38626	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
JENKS, JACOB	38627	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
JIMENEZ, VICTORIA	38628	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$250.00
JOHNSON , TRACY	38630	10/11/2023	SEP. 2023	INSTRUCTOR SERVICES - SHITO-RYU KARATE CLASSES	\$507.00
Remit to: MORENO VALLEY, CA					FYTD: \$1,965.00
JOHNSON, SHARON	38629	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
JOSEPH M. BAKER JR. DBA SPORTIQUE SCREEN PRINTING	38786	10/25/2023	53810	DAY OF THE DEAD EVENT UNIFORM T-SHIRTS	\$1,734.65
Remit to: RIVERSIDE, CA					FYTD: \$11,852.53

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KAMUNYU, NAOMI	38631	10/11/2023	10/16 - 10/19/23	TRAVEL PER DIEM & MILEAGE - 2023 IGNITE NEOGOV CONFERENCE	\$461.91
Remit to: MORENO VALLEY, CA					FYTD: \$461.91
KONICA MINOLTA BUSINESS SOLUTIONS, USA	38787	10/25/2023	43290759	COPIERS C650I/C550I/BIZ360I-CITY WIDE	\$3,013.34
Remit to: PASADENA, CA					FYTD: \$42,131.66
KRUEGER, KIMBERLEE	246364	10/04/2023	REIMB. 9/27/23	REIMBURSE TRANSPORTATION COSTS - 2023 ACCELERATE CONF	\$181.51
Remit to: MORENO VALLEY, CA					FYTD: \$616.79
KTU+A	38788	10/25/2023	35332	PARKS MASTER PLAN PROJECT SERVICES-AUGUST 2023	\$12,675.00
Remit to: SAN DIEGO, CA					FYTD: \$53,483.20
LABEL-AID SYSTEMS INC.	38538	10/04/2023	253069	MV VEHICLE STICKERS FOR BUS. LICENSE-CODE	\$2,724.93
Remit to: MADISON, AL					FYTD: \$2,724.93
LATIN, ALESIA	38632	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
LCG MVD LLC.	246485	10/18/2023	PEN20-0148	REFUND GRADING SECURITY CASH DEPOSIT-PROJ. PEN20-0148/SPROUTS	\$5,000.00
Remit to: LOS ANGELES, CA					FYTD: \$5,000.00
LEAGUE OF CALIFORNIA CITIES- RIV CNTY DIV	246511	10/25/2023	2798	RIVERSIDE COUNTY DIVISION MEETING 09/20/23	\$400.00
Remit to: SACRAMENTO, CA					FYTD: \$600.00

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LEAL, RALPH	246512	10/25/2023	10/22 - 10/27/23	TRAVEL PER DIEM - MOTORCYCLE TRAINING INSTRUCTOR	\$758.50
		10/25/2023	10/29 - 11/3/23	TRAVEL PER DIEM - MOTORCYCLE TRAINING INSTRUCTOR	
Remit to: MORENO VALLEY, CA					FYTD: \$758.50
LEE, MIKE	38734	10/18/2023	10/25 - 10/27/23	TRAVEL PER DIEM & MILEAGE - 2023 ICSC @WESTERN SAN DIEGO CONF	\$239.37
Remit to: MORENO VALLEY, CA					FYTD: \$411.87
LEIGHTON CONSULTING, INC.	38633	10/11/2023	58684	801 0021 SR60/MORENO BEACH PH 2	\$15,946.15
		10/11/2023	58685	801 0021 SR60/MORENO BEACH PH 2	
Remit to: IRVINE, CA					FYTD: \$44,496.27
LEIVAS, INC. DBA. LEIVAS LIGHTING	38789	10/25/2023	1011258	SD LANDSCAPE LIGHT/ELECTRICAL INSPECTION JULY	\$1,400.00
		10/25/2023	1011259	SD LANDSCAPE LIGHT/ELECTRICAL INSPECTION AUGUST	
		10/25/2023	1011260	SD LANDSCAPE LIGHT/ELECTRICAL INSPECTION SEPTEMBER	
		10/25/2023	1011261	SD LANDSCAPE LIGHT/ELECTRICAL INSPECTION OCTOBER	
Remit to: RIVERSIDE, CA					FYTD: \$77,648.33
LEXISNEXIS PRACTICE MANAGEMENT	38634	10/11/2023	3094716281	LEGAL RESEARCH TOOLS-SEPTEMBER 2023	\$883.20
Remit to: CHICAGO, IL					FYTD: \$3,532.80
LIBRARY SYSTEMS & SERVICES, LLC	38735	10/18/2023	INV8296	LIBRARY GRANT-ZIP BOOKS-AUGUST 2023	\$49.26
Remit to: ROCKVILLE, MD					FYTD: \$1,051,227.11
LOPEZ, ALMA	38790	10/25/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
LORCH, BOB	246431	10/11/2023	10/02 - 10/06/23	TRAVEL PER DIEM & MILEAGE - 2023 NATOA CONFERENCE & AWARDS BANQUET	\$357.02
Remit to: MORENO VALLEY, CA					FYTD: \$357.02
LOVE, JANETTE	246396	10/04/2023	R23-176546	ANIMAL SERVICES REFUND LICENSE FEE	\$28.00
	246397	10/04/2023	R23-176547	ANIMAL SERVICES REFUND LICENSE OVERPAY	\$8.00
Remit to: MORENO VALLEY, CA					FYTD: \$36.00
LYONS SECURITY SERVICE, INC.	38540	10/04/2023	35803	SECURITY GUARD SVCS-CONF & REC CTR-JULY 2023	\$20,970.07
		10/04/2023	35952	SECURITY GUARD SVCS-CITY YARD-AUGUST 2023	
	38635	10/11/2023	36134	SECURITY GUARD SVCS-ERC-SEPTEMBER 2023	\$8,429.69
		10/11/2023	36135	SECURITY GUARD SVCS-LIBRARY-SEPTEMBER 2023	
		10/11/2023	36138	SECURITY GUARD SVCS-EL GRITO EVENT & SEC DETECTION RNTL-PARKS	
	38736	10/18/2023	35954	SECURITY GUARD SVCS-CONF & REC CTR-AUGUST 2023	\$10,534.22
	38791	10/25/2023	36128	SECURITY GUARD SVCS-COMMUNITY PARK-SEPTEMBER 2023	\$3,865.13
		10/25/2023	36131	SECURITY GUARD SVCS-COTTONWOOD SPCL EVENT-SEPTEMBER 2023	
		10/25/2023	36133	SECURITY GUARD SVCS-CONF & REC CTR EVENTS-SEPTEMBER 2023	
		10/25/2023	36136	SECURITY GUARD SVCS-SENIOR CENTER-SEPTEMBER 2023	
		10/25/2023	36137	SECURITY GUARD SVCS-TOWNGATE-SEPTEMBER 2023	
Remit to: ANAHEIM, CA					FYTD: \$147,762.10
MACIAS, STEPHANIE	38738	10/18/2023	10/25 - 10/27/23	TRAVEL PER DIEM & MILEAGE - 2023 ICSC @WESTERN SAN DIEGO CONF	\$304.87
Remit to: MORENO VALLEY, CA					FYTD: \$509.33

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MANDELL MUNICIPAL COUNSELING	246459	10/18/2023	6321	LEGAL SERVICES FOR SPECIAL FINANCING DISTRICT- AUGUST 2023	\$2,070.00
Remit to: LOS ANGELES, CA					<u>FYTD:</u> \$2,070.00
MARGARITAS GRILL RESTAURANT & CATERING, LLC	38542	10/04/2023	S02565	VIP CATERING-EL GRITO 2023 EVENT ON 9/15/23	\$8,456.22
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$34,732.31
MARIACHI DIVAS, INC.	246524	10/25/2023	OCT. 27, 2023	MARIACHI DIVAS PERFORMANCE-2023 DAY OF THE DEAD EVENT 10/27/23	\$3,000.00
Remit to: HACIENDA HEIGHTS, CA					<u>FYTD:</u> \$6,000.00
MARIPOSA LANDSCAPES, INC.	38636	10/11/2023	103851R	SD LANDSCAPE ADDITIONAL WORK (NORTH) ZONE 08	\$17,381.52
		10/11/2023	104042R	SD LANDSCAPE BASE (NORTH) AUGUST - ZN 02, 08, CFD 2014-01 LM01C	
		10/11/2023	104175	SD LANDSCAPE ADDITIONAL WORK (WQB)	
		10/11/2023	104178	SD LANDSCAPE ADDITIONAL WORK (NORTH) ZONE 02	
		10/11/2023	104179	SD LANDSCAPE ADDITIONAL WORK (NORTH) ZONE 02	
		10/11/2023	104180	SD LANDSCAPE ADDITIONAL WORK (NORTH) ZONE 02	
Remit to: IRWINDALE, CA					<u>FYTD:</u> \$163,895.31
MARTINEZ, CARLOS	246513	10/25/2023	10/29 - 10/30/23	TRAVEL PER DIEM - MOTOR OFFICER ADVANCED TRAINING	\$83.25
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$83.25
MARTINEZ, DAVID	38637	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
	246419	10/04/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00

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MARTINEZ, MICHAEL	38638	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
MARX | OKUBO ASSOCIATES, LTD	38740	10/18/2023	I-65872-Q0X2	PROPERTY CONDITION ASSESSMENT PROGRESS PAYMENT #3	\$7,872.95
Remit to: DENVER, CO					FYTD: \$97,958.56
MASSEI, DESIREE	38639	10/11/2023	10/15 - 10/20/23	TRAVEL PER DIEM & MILEAGE - 2023 CALED KEYS	\$417.56
Remit to: MORENO VALLEY, CA					FYTD: \$417.56
MATIAS, MARIA	38640	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
MCBEAN, MARY	246486	10/18/2023	2003679.047	DEPOSIT REFUND- CONFERENCE & REC CTR.	\$576.51
Remit to: MORENO VALLEY, CA					FYTD: \$576.51
MCCLAIN, MELISSA	38741	10/18/2023	10/25 - 10/27/23	TRAVEL PER DIEM & MILEAGE - 2023 ICSC @WESTERN SAN DIEGO CONF	\$304.87
Remit to: MORENO VALLEY, CA					FYTD: \$691.98
MCGRATH RENTCORP AND SUBSIDIARIES	38543	10/04/2023	301202124	TEMPORARY STORAGE UNIT RENTAL-CITY YARD 09/24-10/23/23	\$197.81
Remit to: SAN FRANCISCO, CA					FYTD: \$791.24
MEDINA, ELENA N CHUQUI	38641	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
MENDOZA, MICHELLE REYES	38642	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00

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City of Moreno Valley Payment Register

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
MENGISTU, YESHIALEM	38792	10/25/2023	SEP. 2023	MILEAGE REIMBURSEMENT - SEPTEMBER 2023	\$227.94
Remit to: MORENO VALLEY, CA					FYTD: \$421.82
MERCHANTS BUILDING MAINTENANCE, LLC.	38793	10/25/2023	766011	SEP 2023 SPECIAL CLEANINGS FOR EVENT RENTALS-CONF. & REC. CENTER	\$5,926.33
		10/25/2023	766012	SEP 2023 SPECIAL CLEANINGS FOR EVENT RENTALS-COTTONWOOD GOLF CTR	
		10/25/2023	766013	SEP 2023 SPECIAL CLEANINGS FOR EVENT RENTALS-SENIOR CENTER	
		10/25/2023	766014	SEP 2023 SPECIAL CLEANINGS FOR EVENT RENTALS-TOWNGATE COMM. CTR.	
		10/25/2023	766073	CARPET & RECLINER UPHOLSTERY DEEP CLEANING 10/4/23-FIRE ST. #2	
		10/25/2023	766074	CARPET & RECLINER UPHOLSTERY DEEP CLEANING 10/4/23-FIRE ST. #48	
		10/25/2023	766082	CARPET & RECLINER UPHOLSTERY DEEP CLEANING 10/5/23-FIRE ST. #6	
		10/25/2023	766083	CARPET & RECLINER UPHOLSTERY DEEP CLEANING 10/5/23-FIRE ST. #65	
		10/25/2023	766091	CARPET & RECLINER UPHOLSTERY DEEP CLEANING 10/6/23-FIRE ST. #58	
		10/25/2023	766092	CARPET & RECLINER UPHOLSTERY DEEP CLEANING 10/6/23-FIRE ST. #91	
		10/25/2023	766104	CARPET & RECLINER UPHOLSTERY DEEP CLEANING 10/9/23-FIRE ST. #99	
Remit to: MONTEREY PARK, CA					FYTD: \$304,006.73

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MERCHANTS LANDSCAPE SERVICES INC	38544	10/04/2023	62012	LANDSCAPE EXTRA WORK-AUG. 2023/IRRIG. REPAIRS-BAY AVE TO GRAHAM	\$601.96
		10/04/2023	62015	LANDSCAPE EXTRA WORK-AUG. 2023/IRRIG. REPAIRS-CONF. & REC. CTR.	
Remit to: MONTEREY PARK, CA					FYTD: \$601.96
MICHAEL BAKER INTERNATIONAL, INC	38794	10/25/2023	1191092	802 0004 INDIAN ST CARDINAL BRIDGE PH 2	\$21,602.50
		10/25/2023	1192025	801 0052 SR60/WORLD LOGISTICS CENTER PARKWAY INTERCHANGE	
Remit to: LOS ANGELES, CA					FYTD: \$130,467.89
MIDWEST VETERINARY SUPPLY	38545	10/04/2023	20377613-050	ANIMAL MEDICAL SUPPLIES/VACCINES	\$931.18
		10/04/2023	20447015-050	ANIMAL MEDICAL SUPPLIES	
		10/04/2023	20447015-100	ANIMAL MEDICAL SUPPLIES/VACCINES	
	38643	10/11/2023	20377613-102	ANIMAL MEDICAL SUPPLIES/VACCINES	\$709.84
	38795	10/25/2023	20640598-000	ANIMAL MEDICAL SUPPLIES/VACCINES	\$1,531.79
Remit to: LAKEVILLE, MN					FYTD: \$10,752.04
MIRACLE RECREATION EQUIPMENT	246365	10/04/2023	864224	PLAYGROUND EQUIPMENT-TEN SPIN	\$5,653.72
Remit to: DALLAS, TX					FYTD: \$22,365.88
MISSION LINEN SUPPLY, INC.	38546	10/04/2023	520050870	LINEN RENTAL SERVICES	\$138.54
		10/04/2023	520099560	LINEN RENTAL SERVICES	
	38644	10/11/2023	520152821	LINEN RENTAL SERVICES	\$358.92
	38743	10/18/2023	520198680	LINEN RENTAL SERVICES	\$170.02
10/18/2023		520201488	LINEN RENTAL SERVICES		
Remit to: SANTA BARBARA, CA					FYTD: \$1,725.54

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MONTO, DANIEL	246366	10/04/2023	10/9 - 10/12/23	TRAVEL PER DIEM - 2023 NRPA ANNUAL CONFERENCE	\$241.50
	246460	10/18/2023	REIMB. 10/9/23	TRAVEL REIMBURSEMENT - TRANSPORTATION 10/9/23	\$105.69
Remit to: MORENO VALLEY, CA					FYTD: \$347.19
MORENO VALLEY CHAMBER OF COMMERCE	246487	10/18/2023	2003680.047	DEPOSIT REFUND- CONFERENCE & REC CTR.	\$576.51
Remit to: MORENO VALLEY, CA					FYTD: \$576.51
MORENO, ERIK	38645	10/11/2023	10/16 - 10/19/23	TRAVEL PER DIEM & MILEAGE - 2023 IGNITE NEOGOV CONFERENCE	\$273.46
Remit to: MORENO VALLEY, CA					FYTD: \$589.21
MOTOPOST USA	246432	10/11/2023	1303	UNIFORM ITEMS FOR PD TRAFFIC OFFICER	\$75.43
Remit to: ESCONDIDO, CA					FYTD: \$1,718.88
MOVE & GROOVE FOR HEALTH	38646	10/11/2023	OCT. 2, 2023	OFFICE OF MAYOR & CITY COUNCIL SPONSORSHIP-MOVE & GROOVE PROGRAM	\$2,000.00
	38647	10/11/2023	OCT. 5, 2023	MOVE & GROOVE PROGRAM SPONSORSHIP TO COVER EXPENSES	\$600.00
Remit to: MORENO VALLEY, CA					FYTD: \$2,600.00
MUNOZ, MARGARITA	246527	10/25/2023	MVA040041586	REFUND PARKING CITATION FEE - DISMISSED	\$57.50
Remit to: MORENO VALLEY, CA					FYTD: \$57.50
MURILLO, MARIA	246488	10/18/2023	2003671.047	DEPOSIT REFUND- SENIOR CTR.	\$340.00
Remit to: MORENO VALLEY, CA					FYTD: \$340.00
MWI ANIMAL HEALTH	246514	10/25/2023	50542816	ANIMAL MEDICAL SUPPLIES/VACCINES	\$70.61
Remit to: LOS ANGELES, CA					FYTD: \$933.01

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NALVARTE, ANASTASIA	38648	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
NAMEKATA, JAMES	38649	10/11/2023	SEP. 2023	INSTRUCTOR SERVICES - SHITO-RYU KARATE CLASSES	\$507.00
Remit to: RIVERSIDE, CA					<u>FYTD:</u> \$1,965.00
NAVARRETTE, RAMONA	246398	10/04/2023	R23-176833	ANIMAL SERVICES REFUND S/N AND RAB DEPS	\$190.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$190.00
NEARMAP US INC.	38650	10/11/2023	INV01021420	AI OFFLINE VECTOR - 9/07/23-9/06/24	\$10,846.34
Remit to: SOUTH JORDAN, UT					<u>FYTD:</u> \$10,846.34
NEXTECH SYSTEMS INC.	246461	10/18/2023	INV2191	(2) RRFB CROSSWALK SYSTEMS	\$9,075.36
Remit to: IRVINE, CA					<u>FYTD:</u> \$33,656.64
NGUYEN, CLEMENT BA DUONG	38651	10/11/2023	SEP. 2023	INSTRUCTOR SERVICES - VOVINAM MARTIAL ARTS CLASSES	\$676.20
Remit to: BEAUMONT, CA					<u>FYTD:</u> \$2,234.40
NICCOLI, JASON	38744	10/18/2023	10/25 - 10/27/23	TRAVEL PER DIEM & MILEAGE - 2023 WSPP FALL OPERATING COMM MTG	\$195.09
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$195.09
NINYO & MOORE GEOTECHNICAL	38796	10/25/2023	274462	807 0058 PUMP TRACK AT MARCH FIELD PARK	\$14,700.34
Remit to: SAN DIEGO, CA					<u>FYTD:</u> \$18,934.09
NOLLEY, TONAE	246528	10/25/2023	2003690.047	DEPOSIT REFUND-COTTONWOOD GOLF CTR	\$230.50
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$230.50

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NPG INC, DBA GOLDSTAR ASPHALT PRODUCTS	38547	10/04/2023	24680	ROAD AND HIGHWAY BUILDING MATERIALS-MAINT & OPS	\$195.57
	38797	10/25/2023	24417	ROAD AND HIGHWAY BUILDING MATERIALS-MAINT & OPS	\$853.38
		10/25/2023	24530	ROAD AND HIGHWAY BUILDING MATERIALS-MAINT & OPS	
		10/25/2023	24886	ROAD AND HIGHWAY BUILDING MATERIALS-MAINT & OPS	
Remit to: PERRIS, CA					<u>FYTD:</u> \$1,997.16
OLIVA, JORGE	246489	10/18/2023	CIT.# C31852	REFUND ADMIN CITATION FEE - DISMISSED	\$220.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$220.00
ONTIVEROS, STEPHANIE	246443	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
ORTIZ, CLAUDIA	246446	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$500.00
		10/11/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
PACHECO, KAYSHA	38653	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
PACIFIC PRODUCTS AND SERVICES LLC	246433	10/11/2023	32499	SIGN POSTS	\$570.00
Remit to: ANAHEIM, CA					<u>FYTD:</u> \$34,107.19
PERCEPTIVE ENTERPRISES, INC.	38798	10/25/2023	3873	PROFESSIONAL DBE/CPR CONSULTING SERVICES	\$8,232.00
Remit to: LOS ANGELES, CA					<u>FYTD:</u> \$36,056.00

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PERMITROCKET SOFTWARE LLC DBA EPERMITHUB	38654	10/11/2023	2309	EPERMITHUB DIGITAL PLAN ROOM CUSTOMER SUCCESS-TECH SERV	\$945.00
Remit to: MIAMI, FL					FYTD: \$9,502.50
PHILLIPS FEED SERIVCE, INC.	38745	10/18/2023	33614081	ANIMAL FOOD FOR M.V. ANIMAL SHELTER	\$849.50
Remit to: EASTON, PA					FYTD: \$849.50
PICAZO, JONATHAN	38799	10/25/2023	10/16 - 10/20/23	TRAVEL PER DIEM & MILEAGE - 2023 IGNITE NEOGOV CONFERENCE	\$800.34
		10/25/2023	REIMB. 10/24/23	STARBUCKS GIFT CARDS FOR OPEN ENROLLMENT/BENEFITS FAIR	
Remit to: MORENO VALLEY, CA					FYTD: \$800.34
PREZI, INC.	38746	10/18/2023	Q025544	ORDER FOR ANNUAL SUBSCRIPTION TO PRESENTATION SOFTWARE (3 LIC.)	\$684.00
Remit to: CONCORD, CA					FYTD: \$684.00
PRIETO, JOSEPH	38548	10/04/2023	10/9 - 10/12/23	TRAVEL PER DIEM - 2023 NRPA ANNUAL CONFERENCE	\$278.31
	38800	10/25/2023	REIMB. 10/9/23	TRAVEL REIMBURSEMENT - TRANSPORTATION/PARKING 10/9/23	\$178.75
Remit to: RIVERSIDE, CA					FYTD: \$457.06
PRIORIT CONSULTING, LLC	38801	10/25/2023	PC 395	GIS SERVER SUPPORT SERVICES - SEP. 2023	\$1,200.00
Remit to: REDLANDS, CA					FYTD: \$4,950.00
PROFESSIONAL COMMUNICATIONS NETWORK PCN	246462	10/18/2023	222300508	LIVE ANSWERING SERVICE FOR ROTATIONAL TOW PROGRAM	\$413.83
	246515	10/25/2023	222400395	LIVE ANSWERING SERVICE FOR ROTATIONAL TOW PROGRAM	\$409.98
Remit to: RIVERSIDE, CA					FYTD: \$1,646.22

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PTS COMMUNICATIONS INC	38549	10/04/2023	2111415	PAY PHONE SERVICES-OCT. 2023	\$128.28
	38802	10/25/2023	2113004	PAY PHONE SERVICES-NOV. 2023	\$171.49
Remit to: SAN RAMON, CA					<u>FYTD:</u> \$710.27
QUALITY CODE PUBLISHING	246463	10/18/2023	GC0011681	SUPPLEMENT SERVICE TO THE MV MUNICIPAL CODE	\$2,188.20
Remit to: DETROIT, MI					<u>FYTD:</u> \$5,602.10
QUINONEZ, MARLENE	38656	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
RAMOS, GUADALUPE	38657	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
	246417	10/04/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
RAMOS, KARLA	38658	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
RAMOS, RICARDO	246399	10/04/2023	PHO23-0197	REFUND OTC HOME OCCUPATION PERMIT FEES - APPLIC. WITHDRAWN	\$95.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$95.00
RAMOS, ROBERTO	38550	10/04/2023	SEP. 2023	INSTRUCTOR SERVICES-AMAZING MARTIAL ARTS & TAE KWON DO CLASSES	\$1,378.30
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$5,221.30
RANCHO READY MIX PRODUCTS, L.P.	38659	10/11/2023	144464	CONCRETE MAINTENANCE MATERIALS - 801 0091	\$1,005.40
Remit to: LAKE ELSINORE, CA					<u>FYTD:</u> \$4,819.84

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READY REFRESH BY NESTLE	38551	10/04/2023	03G6703657388	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-FIRE STATION 58	\$2,889.78
		10/04/2023	03G6703657389	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-FIRE STATION 99	
		10/04/2023	03G6703657393	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-ANIMAL SHELTER	
		10/04/2023	03G6703657396	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-ANIMAL SHELTER	
		10/04/2023	03G6703657399	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-FIRE STATION 6	
		10/04/2023	03G6703657401	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-SENIOR CENTER	
		10/04/2023	03G6703657403	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-FIRE STATION 48	
		10/04/2023	03G6703657407	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-CRC	
		10/04/2023	03G6703657409	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-ANNEX 1	
		10/04/2023	03G6703657410	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-ANNEX 1	
		10/04/2023	03G6703657413	WATER DISPENSER UNITS (3) RENTAL & FILTRATION SERVICE-BERC	
		10/04/2023	03G6703658235	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-PSB	
		10/04/2023	03G6703658237	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-PSB	
		10/04/2023	03G6703658271	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-CY SANTIAGO	
		10/04/2023	03G6703658273	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-FIRE STATION 91	
		10/04/2023	03G6703658274	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-MAIN LIBRARY	
		10/04/2023	03G6703660049	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-CITY HALL /PW	
		10/04/2023	03G6703660050	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-CITY HALL/DEV.	

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READY REFRESH BY NESTLE	38551	10/04/2023	03G6703660052	WATER DISPENSER UNIT RENTAL-CITY HALL LOBBY	\$2,889.78
		10/04/2023	03G6703660053	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-CITY HALL/CLERK	
		10/04/2023	03G6703660054	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-CITY HALL/CHAMB	
		10/04/2023	03G6703660056	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-CITY HALL/BRKRM	
		10/04/2023	03G6703660057	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-CITY YARD	
		10/04/2023	03G6703660060	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-RAINBOW RIDGE	
		10/04/2023	03G6703686057	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-EOC	
		10/04/2023	03G6703686058	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-VAL VERDE	
		10/04/2023	03G6705245066	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-PSB	
		10/04/2023	03G6706250063	WATER DISPENSER UNIT RENTAL-FIRE STATION 65	
10/04/2023	03G6706250064	WATER DISPENSER UNIT RENTAL & FILTRATION SERVICE-FIRE STATION 2			

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READY REFRESH BY NESTLE	38661	10/11/2023	0316703657388	WATER DISPENSER UNIT RENTAL-FIRE STATION 58	\$871.46
		10/11/2023	0316703657389	WATER DISPENSER UNIT RENTAL-FIRE STATION 99	
		10/11/2023	0316703657393	WATER DISPENSER UNIT RENTAL-ANIMAL SHELTER	
		10/11/2023	0316703657396	WATER DISPENSER UNIT RENTAL-ANIMAL SHELTER	
		10/11/2023	0316703657399	WATER DISPENSER UNIT RENTAL-FIRE STATION 6	
		10/11/2023	0316703657401	WATER DISPENSER UNIT RENTAL-SENIOR CENTER	
		10/11/2023	0316703657403	WATER DISPENSER UNIT RENTAL-FIRE STATION 48	
		10/11/2023	0316703657407	WATER DISPENSER UNIT RENTAL-CRC	
		10/11/2023	0316703657409	WATER DISPENSER UNIT RENTAL-ANNEX 1	
		10/11/2023	0316703657410	WATER DISPENSER UNIT RENTAL-ANNEX 1	
		10/11/2023	0316703657413	WATER DISPENSER UNITS (3) RENTAL-BERC	
		10/11/2023	0316703658235	WATER DISPENSER UNIT RENTAL-PUBLIC SAFETY BUILDING	
		10/11/2023	0316703658237	WATER DISPENSER UNIT RENTAL-PUBLIC SAFETY BUILDING	
		10/11/2023	0316703658271	WATER DISPENSER UNIT RENTAL-CITY YARD SANTIAGO OFFICE	
		10/11/2023	0316703658273	WATER DISPENSER UNIT RENTAL-FIRE STATION 91	
		10/11/2023	0316703658274	WATER DISPENSER UNIT RENTAL-MAIN LIBRARY	
		10/11/2023	0316703660049	WATER DISPENSER UNIT RENTAL-CITY HALL PW AREA	
		10/11/2023	0316703660050	WATER DISPENSER UNIT RENTAL-CITY HALL DEV SVCS AREA	
		10/11/2023	0316703660052	WATER DISPENSER UNIT RENTAL-CITY HALL LOBBY	
		10/11/2023	0316703660053	WATER DISPENSER UNIT RENTAL-CITY HALL CITY CLERK AREA	
		10/11/2023	0316703660054	WATER DISPENSER UNIT RENTAL-CITY HALL COUNCIL CHAMBER	
		10/11/2023	0316703660056	WATER DISPENSER UNIT RENTAL-CITY HALL BREAKROOM	
		10/11/2023	0316703660057	WATER DISPENSER UNIT RENTAL-CITY YARD	
		10/11/2023	0316703660060	WATER DISPENSER UNIT RENTAL-RAINBOW RIDGE	
		10/11/2023	0316703686057	WATER DISPENSER UNIT RENTAL-EOC	
		10/11/2023	0316703686058	WATER DISPENSER UNIT RENTAL-VAL VERDE (RED MAPLE) SITE	
		10/11/2023	0316705245066	WATER DISPENSER UNIT RENTAL-PUBLIC SAFETY BUILDING	
		10/11/2023	0316706250063	WATER DISPENSER UNIT RENTAL-FIRE STATION 65	
		10/11/2023	0316706250064	WATER DISPENSER UNIT RENTAL-FIRE STATION 2	

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<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
READY REFRESH BY NESTLE	38662	10/11/2023	0316706999083	BOTTLED WATER & DELIVERY FEE-SUNNYMEAD ELEMENTARY/CHILD CARE	\$6.46
Remit to: LOUISVILLE, KY					FYTD: \$5,603.19
REGALADO, BLANCA E	38663	10/11/2023	SEP. 2023	INSTRUCTOR SERVICES-FOLKLORIC DANCE ADULT & YOUTH CLASSES	\$636.00
Remit to: LAKE ELSINORE, CA					FYTD: \$2,853.60
RENZ, ASHLEIGH	38805	10/25/2023	FALL 2023	TUITION/EMPLOYEE EDUCATION REIMBURSEMENT	\$993.00
Remit to: MORENO VALLEY, CA					FYTD: \$1,986.00
REYES, NANCY	246400	10/04/2023	PTU23-0020	REFUND OVERPAYMENT ON TEMP. USE PERMIT - INCORRECT RATE CHARGED	\$157.25
Remit to: FONTANA, CA					FYTD: \$157.25
RIVERA, JASMIN	246464	10/18/2023	9/19 - 9/22/23	TRAVEL PER DIEM - 2023 CAL CITIES CONFERENCE & EXPO	\$241.50
Remit to: MORENO VALLEY, CA					FYTD: \$241.50
RIVERA-CUELLAR, JOSE	246401	10/04/2023	MVA020029935	REFUND PARKING CITATION FEE - DUPLICATE PAYMENT	\$115.00
Remit to: MORENO VALLEY, CA					FYTD: \$115.00
RIVERSIDE COUNTY DEPARTMENT OF HEALTH	246367	10/04/2023	HS0000007759	FRA RABIES TESTING @ PUBLIC HEALTH LAB - AUG. 2023	\$150.00
Remit to: RIVERSIDE, CA					FYTD: \$500.00
RIVERSIDE COUNTY DEPUTY SHERIFF RELIEF FOUNDATION	246516	10/25/2023	SEP. 29, 2023	EAST END-DESERT WILLOW CHARITY GOLF TOURNAMENT-BLUE HERO SPONSOR	\$2,500.00
Remit to: RIVERSIDE, CA					FYTD: \$2,500.00

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RIVERSIDE COUNTY SHERIFF-PSEC UNIT	246466	10/18/2023	PE0000001277	PSEC RADIO SUBSCRIPTIONS-CODE 9/1-9/30/23	\$1,231.44
		10/18/2023	PE0000001278	PSEC RADIO SUBSCRIPTIONS-PARK RANGERS 9/1-9/30/23	
Remit to: RIVERSIDE, CA					FYTD: \$4,794.30
RIVERSIDE UNIVERSITY HEALTH SYSTEMS - MEDICAL CTR	38807	10/25/2023	RSO-MV 2023-09	SART EXAMS - SEPTEMBER 2023	\$5,600.00
Remit to: MORENO VALLEY, CA					FYTD: \$21,600.00
RMA GROUP, INC	246517	10/25/2023	86975	801 0086 JUAN BAUTISTA TRAIL ATP 4	\$7,246.00
Remit to: RANCHO CUCAMONGA, CA					FYTD: \$18,479.00
ROBNETT, LEINAALA	246434	10/11/2023	10/15 - 10/20/23	TRAVEL PER DIEM - TRAFFIC COLLISION INVESTIGATION COURSE-WEEK 1	\$707.26
		10/11/2023	10/22 - 10/27/23	TRAVEL PER DIEM - TRAFFIC COLLISION INVESTIGATION COURSE-WEEK 2	
Remit to: MORENO VALLEY, CA					FYTD: \$707.26
ROGELIO SILVA	246525	10/25/2023	0092723	MC SERVICES FOR DAY OF THE DEAD 2023 EVENT ON 10/27/23	\$300.00
Remit to: BELLFLOWER, CA					FYTD: \$6,800.00
ROMERO, ANDREW	38664	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
ROMERO, FATIMA	38665	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
RS CONSTRUCTION SERVICES	38748	10/18/2023	2023-210	ROOF LEAK REPAIR-FIRE STATION 91	\$16,620.00
Remit to: ONTARIO, CA					FYTD: \$16,620.00

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RSG, INC	38749	10/18/2023	1010893	AFFORDABLE HOUSING COMPLIANCE MONITORING SERVICES-SEP. 2023	\$1,792.50
Remit to: VISTA, CA					FYTD: \$10,692.50
RUHS FOUNDATION	246467	10/18/2023	OCT. 12, 2023	SPONSORSHIP FOR FESTIVAL OF TREES GALA-EMERALD STAR SPONSOR	\$9,500.00
	246468	10/18/2023	OCTOBER 12, 2023	ANNUAL PINWHEELS FOR PREVENTION SPONSORSHIP-CULTIVATING COURAGE	\$2,500.00
Remit to: MORENO VALLEY, CA					FYTD: \$12,000.00
RUIZ, JASSON	38666	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
	246418	10/04/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00
RUIZ, LUZ	246402	10/04/2023	R23-174370	ANIMAL SERVICES REFUND S/N DEPOSIT	\$75.00
Remit to: MORENO VALLEY, CA					FYTD: \$75.00
RUNNING GECKO COMMUNICATIONS, LLC.	38808	10/25/2023	2023-7-1-3	COMMUNICATION SERVICES 8/01-9/15/23	\$1,040.00
Remit to: TUSTIN, CA					FYTD: \$1,040.00
SAFEWAY SIGN CO.	38667	10/11/2023	55453	TRAFFIC SIGNS/HARDWARE	\$947.25
Remit to: ADELANTO, CA					FYTD: \$21,816.19
SANDOVAL, ALEJANDRA	38668	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					FYTD: \$500.00

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SANTIAGO, RUTH JACQUELINE	246448	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$500.00
		10/11/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
SC COMMERCIAL LLC DBA SC FUELS	38552	10/04/2023	2471925-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	\$18,673.80
		10/04/2023	2472869-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/04/2023	2475220-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/04/2023	2477395-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
	38669	10/11/2023	2478238-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	\$17,565.97
		10/11/2023	2480348-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/11/2023	2482523-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
		10/11/2023	2483549-IN	FUEL FOR CITY VEHICLES & EQUIPMENT	
Remit to: ORANGE, CA					<u>FYTD:</u> \$254,906.37
SECURITY SIGNAL DEVICES, INC. DBA SSD ALARM	38670	10/11/2023	R-00472432	ALARM SYSTEM SERVICES FOR MOVAL & KITCHING SUBSTATIONS-OCT. 2023	\$515.47
Remit to: ANAHEIM, CA					<u>FYTD:</u> \$2,061.88
SHUSTER ADVISORY GROUP, LLC	38810	10/25/2023	3761	ADVISORY FEE 457(B) - FIDUCIARY SERVICES JUL. 2023	\$8,000.01
		10/25/2023	3837	ADVISORY FEE 457(B) - FIDUCIARY SERVICES AUG. 2023	
		10/25/2023	4103	ADVISORY FEE 457(B) - FIDUCIARY SERVICES SEP. 2023	
Remit to: PASADENA, CA					<u>FYTD:</u> \$8,000.01

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SIGNS BY TOMORROW	38553	10/04/2023	31072	PUBLIC HEARING SIGN (1) UPDATE & INSTALLATION SERVICES	\$1,939.95
		10/04/2023	31074	PUBLIC HEARING SIGN (1) UPDATE & INSTALLATION SERVICES	
		10/04/2023	31144	PUBLIC HEARING SIGN (1) UPDATE & INSTALLATION SERVICES	
		10/04/2023	31149	PUBLIC HEARING SIGNS (2) UPDATE & INSTALLATION SERVICES	
	38671	10/04/2023	31181	PUBLIC HEARING SIGN (1) UPDATE & INSTALLATION SERVICES	\$2,331.79
		10/11/2023	31251	PUBLIC HEARING SIGN (1) UPDATE & INSTALLATION SERVICES	
		10/11/2023	31252	PUBLIC HEARING SIGNS (4) UPDATE & INSTALLATION SERVICES	
		10/11/2023	31323	PUBLIC HEARING SIGNS (2) UPDATE & INSTALLATION SERVICES	
Remit to: MURRIETA, CA					<u>FYTD:</u> \$7,005.49
SIMMONS, DESTINY	246445	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$500.00
		10/11/2023	SEPTEMBER 2023	MOVALEARNS PROGRAM STIPEND-SEPTEMBER 2023	
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
SMITH, RITA	38672	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
SOUTHERN CALIFORNIA EDISON	246368	10/04/2023	395913224/AUG-23	ELECTRICITY CHARGES (INCL. BILLING CORRECTIONS DEC22-AUG23)	\$15,975.82
		10/04/2023	SEP-23 10/4/23	ELECTRICITY CHARGES	
	246518	10/25/2023	OCT-23 10/25/23	ELECTRICITY CHARGES	\$4,660.14
Remit to: ROSEMEAD, CA					<u>FYTD:</u> \$867,263.15
SOUTHERN CALIFORNIA GAS CO.	246470	10/18/2023	SEP-2023	GAS CHARGES	\$2,516.63
	246471	10/18/2023	06932310219-SEP	GAS CHARGES - ACCT# 069 323 1021 9/UFO-SEP. 2023	\$18.71
Remit to: MONTEREY PARK, CA					<u>FYTD:</u> \$13,159.39
SOUTHERN PET SUPPLIES	38554	10/04/2023	9993	PET SUPPLIES-ASSORTED COLLARS AND LEADS	\$406.30
Remit to: SAN DIEGO, CA					<u>FYTD:</u> \$406.30

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SPARKLETTS	38673	10/11/2023	6435574 090123	BOTTLED WATER SERVICE FOR CITY YARD	\$328.15
Remit to: DALLAS, TX					FYTD: \$874.96
SSCA ENTERPRISES LLC	246490	10/18/2023	REFUND-10/17/23	REFUND FOR OVERPAYMENT OF CANNABIS BUSINESS TAX	\$399.87
Remit to: MORENO VALLEY, CA					FYTD: \$399.87
STANDARD INSURANCE CO	246472	10/18/2023	231001	EMPLOYEE SUPPLEMENTAL INSURANCE	\$1,534.22
	246519	10/25/2023	230801	EMPLOYEE SUPPLEMENTAL INSURANCE	\$1,534.22
Remit to: PORTLAND, OR					FYTD: \$7,729.30
STATE BOARD OF EQUALIZATION 1	38892	10/30/2023	3RD QTR 2023	SALES & USE TAX REPORT FOR THE QUARTER ENDING 9/30/23	\$1,812.00
Remit to: SACRAMENTO, CA					FYTD: \$9,998.00
STATE OF CALIFORNIA DEPT. OF JUSTICE	246436	10/11/2023	677516	BLOOD ALCOHOL ANALYSIS SERVICES FOR PD-JUL. 2023	\$1,015.00
		10/11/2023	683681	BLOOD ALCOHOL ANALYSIS SERVICES FOR PD-AUG. 2023	
	246520	10/25/2023	685572	LIVE SCAN FINGERPRINTING APPS FOR PD-SEP. 2023	\$1,302.00
Remit to: SACRAMENTO, CA					FYTD: \$14,359.00
STEVEN B. QUINTANILLA A PROFESSIONAL CORPORATION	38555	10/04/2023	AUG-23/MILLER	SPECIAL COUNSEL LITIGATION SVCS-MILLER STARR REG. 08/01-08/31/23	\$2,522.50
	38812	10/25/2023	SEP-23/MILLER	SPECIAL COUNSEL LITIGATION SVCS-MILLER STARR REG. 09/01-09/30/23	\$1,471.11
Remit to: PALM SPRINGS, CA					FYTD: \$456,439.77

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STEVEN PERRY PROFESSIONAL PHOTOGRAPHY	38556	10/04/2023	230922.1	PHOTOGRAPHY SERVICES 9/21/23 - MOVAL JOB FAIR	\$433.75
		10/04/2023	230922.2	PHOTOGRAPHY SERVICES 9/21/23 - WOODSPRING SUITES GRAND OPENING	
	38813	10/25/2023	231019.1	PHOTOGRAPHY SERVICES 10/18/23 - TRENDSETTER AWARD PHOTOS	\$206.25
Remit to: MORENO VALLEY, CA					FYTD: \$6,785.00
STILES ANIMAL REMOVAL, INC.	246437	10/11/2023	3702	DECEASED LARGE ANIMAL REMOVAL SERVICES-SEP. 2023	\$2,770.00
Remit to: GUAISTI, CA					FYTD: \$10,755.00
STRADLING, YOCCA, CARLSON & RAUTH	38814	10/25/2023	399111-0008	LEGAL SERVICES-FORECLOSURE 12914 ROBERTS WAY MATTER-JUL. 2023	\$19,854.00
		10/25/2023	399112-0009	LEGAL SERVICES-24124/24108 FIR AVE SURPLUS LAND MATTER-JUL. 2023	
	38815	10/25/2023	400292	LEGAL SERVICES-FORECLOSURE 12914 ROBERTS WAY MATTER-AUG. 2023	\$4,872.50
Remit to: NEWPORT BEACH, CA					FYTD: \$51,227.00
SUNNYMEAD ACE HARDWARE	246521	10/25/2023	99837	MISC. SUPPLIES FOR PD	\$320.08
		10/25/2023	99842	MISC. SUPPLIES FOR PD	
		10/25/2023	99895	MISC. SUPPLIES FOR PD	
		10/25/2023	99896	MISC. SUPPLIES FOR PD	
		10/25/2023	99980	MISC. SUPPLIES FOR PD - LOGISTIC KEYS	
Remit to: MORENO VALLEY, CA					FYTD: \$1,212.75
SUNNYMEAD VETERINARY CLINIC	246491	10/18/2023	CK NO. 238744	REISSUE UNCLAIMED CHECK-BUSINESS LIC. #06420 OVERPYMT FOR YR2020	\$293.84
Remit to: FULLERTON, CA					FYTD: \$293.84

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SUPERIOR READY MIX CONCRETE	246438	10/11/2023	372854	CONCRETE MAINTENANCE MATERIALS - 801 0091	\$9,464.16
		10/11/2023	373339	CONCRETE MAINTENANCE MATERIALS - 801 0091	
		10/11/2023	374460	CONCRETE MAINTENANCE MATERIALS - 801 0091	
		10/11/2023	375489	CONCRETE MAINTENANCE MATERIALS - 801 0091	
		10/11/2023	376179	CONCRETE MAINTENANCE MATERIALS - 801 0091	
		10/11/2023	377047	CONCRETE MAINTENANCE MATERIALS - 801 0091	
		10/11/2023	378462	CONCRETE MAINTENANCE MATERIALS - 801 0091	
		10/11/2023	378720	CONCRETE MAINTENANCE MATERIALS - 801 0091	
		10/11/2023	379284	CONCRETE MAINTENANCE MATERIALS - 801 0091	
Remit to: ESCONDIDO, CA					<u>FYTD:</u> \$28,236.39
SVA ARCHITECTS, INC.	38674	10/11/2023	61145	803 0057_SENIOR CENTER EXPANSION	\$12,140.00
Remit to: SANTA ANA, CA					<u>FYTD:</u> \$20,600.00
SWINSON DBA REVERENCE PERFORMING ARTS ACADEMY, RACHEL	38675	10/11/2023	SEP. 2023	INSTRUCTOR SERVICES - DANCE CLASSES	\$828.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$828.00
TAYLOR, ALYSHA MARIE	38677	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
TAYLOR, TIARA	38678	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
TERRACON CONSULTANTS, INC	38558	10/04/2023	TJ30518	GEOTECHNICAL SERVICES - EARTHQUAKE FAULT TRENCHING/WLC	\$815.00
Remit to: ST. LOUIS, MO					<u>FYTD:</u> \$815.00

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THE ADVANTAGE GROUP/ FLEX ADVANTAGE	38680	10/11/2023	162647	FLEX AND COBRA ADMIN FEES-SEP. 2023	\$1,589.00
	38751	10/18/2023	161408	FLEX AND COBRA ADMIN FEES-AUG. 2023	\$1,584.05
Remit to: TEMECULA, CA					FYTD: \$203,970.28
THE HOME DEPOT	246403	10/04/2023	BOC22-0209	REFUND PERMIT FEES-PROJECT CANCELLED-14940 CLIFFROSE CT	\$194.08
	246404	10/04/2023	BOC22-0157	REFUND PERMIT FEES-PROJECT CANCELLED-11580 INDIAN ST	\$194.08
	246405	10/04/2023	BOC22-0313	REFUIND PERMIT FEES-PROJECT CANCELLED-14604 JOSHUA TREE	\$194.08
	246406	10/04/2023	BOC22-0058	REFUND PERMIT FEES-PROJECT CANCELLED-23808 YELLOWBILL	\$194.08
	246407	10/04/2023	BOC21-0441	REFUND PERMIT FEES-PROJECT CANCELLED-25825 VIA HAMACA	\$234.88
	246408	10/04/2023	BOC22-0337	REFUND PERMIT FEES-PROJECT CANCELLED-14420 UNITY CT	\$292.64
	246409	10/04/2023	BOC22-0359	REFUND PERMIT FEES-PROJECT CANCELLED-23735 BOUQUET CANYON	\$292.64
	246410	10/04/2023	BOC22-0383	REFUND PERMIT FEES-PROJECT CANCELLED-24743 COVEY RD	\$194.08
	246411	10/04/2023	BOC22-0314	REFUND PERMIT FEES-PROJECT CANCELLED-23836 GAMMA ST	\$194.08
	246412	10/04/2023	BOC23-0112	REFUND PERMIT FEES-PROJECT CANCELLED-14604 CAGNEY CT	\$194.08
Remit to: SAN DIEGO, CA					FYTD: \$2,178.72
THOMPSON COBURN LLP	38753	10/18/2023	3629797	LEGAL SERVICES-MVU/RELIABILITY STANDARD COMPLIANCE/AUG. 2023	\$36.84
Remit to: WASHINGTON, DC					FYTD: \$170.07
THOMSON REUTERS-WEST PUBLISHING CORP.	38681	10/11/2023	849053320	AUTO TRACK SERVICES FOR PD INVESTIGATIONS-SEP. 2023	\$1,450.56
Remit to: CAROL STREAM, IL					FYTD: \$5,802.24

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T-MOBILE USA, INC.	246439	10/11/2023	9545793409	CELLULAR TECHNOLOGY EXTRACTION/LOCATOR SERVICES FOR PD	\$100.00
		10/11/2023	9546245350	CELLULAR TECHNOLOGY EXTRACTION/LOCATOR SERVICES FOR PD	
	246522	10/25/2023	9547245724	CELLULAR TECHNOLOGY EXTRACTION/LOCATOR SERVICES FOR PD	\$50.00
		10/25/2023	9547245725	CELLULAR TECHNOLOGY EXTRACTION/LOCATOR SERVICES FOR PD	
Remit to: SEATTLE, WA					FYTD: \$1,000.00
TORRES, CLAUDIA	38754	10/18/2023	10/9 - 10/12/23	TRAVEL PER DIEM - 2023 NRPA ANNUAL CONFERENCE	\$241.50
	38818	10/25/2023	REIMB. 10/9/23	TRAVEL REIMBURSEMENT - TRANSPORTATION 10/9/23	\$131.12
Remit to: MORENO VALLEY, CA					FYTD: \$507.62
TOUCH OF SOUL	38682	10/11/2023	SEP. 2023	INSTRUCTOR SERVICES - SOUL LINE DANCING CLASS	\$412.80
Remit to: MORENO VALLEY, CA					FYTD: \$1,806.00
TOWNSEND PUBLIC AFFAIRS, INC.	38560	10/04/2023	20266	CONSULTING SERVICES-LOBBYIST/ADVOCATE & GRANT WRITING-AUG. 2023	\$4,000.00
	38755	10/18/2023	20550	CONSULTING SERVICES-LOBBYIST/ADVOCATE & GRANT WRITING-OCT. 2023	\$4,000.00
Remit to: NEWPORT BEACH, CA					FYTD: \$12,000.00
TRICHE, TARA	38683	10/11/2023	SEP. 2023	INSTRUCTOR SERVICES - BALLET & DANCE EXPLORATION CLASSES	\$1,335.60
Remit to: MORENO VALLEY, CA					FYTD: \$5,448.60

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CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
TRUEPOINT SOLUTIONS, LLC	38561	10/04/2023	23-1015	ACP SUPPORT SERVICES - AUG. 2023	\$1,875.00
	38684	10/11/2023	23-0593	SUPPORT SERVICES - BUILDING SOLAR APP PLUS-MAY 2023	\$6,225.00
		10/11/2023	23-1013	CONSULTING SERVICES-LAND DEV VIRTUAL COUNTER & ACP SUPPORT-AUG23	
		10/11/2023	23-1014	SUPPORT SERVICES - BUILDING SOLAR APP PLUS-AUG. 2023	
		10/11/2023	23-895	CONSULTING SERVICES-JULY 2023-LAND DEV VIRTUAL COUNTER-PHASE 2	
		10/11/2023	23-896	SUPPORT SERVICES - ACP SUPPORT & ENHANCEMENTS/JUL. 2023	
Remit to: LOOMIS, CA					<u>FYTD:</u> \$11,475.00
TSG ENTERPRISES, INC. DBA THE SOLIS GROUP	38819	10/25/2023	11593	801 0090 CITYWIDE PVT REHAB PGM (FY26-31)	\$7,350.00
		10/25/2023	11594	801 0086 JUAN BAUTISTA DE ANZA MULTI-USE TRAIL - ATP 4	
		10/25/2023	11595	801 0021 SR60/MORENO BEACH PH 2	
Remit to: PASADENA, CA					<u>FYTD:</u> \$61,341.00
TYLER TECHNOLOGIES, INC.	246370	10/04/2023	080-104188	TYLER OPEN EXPENDITURE 6/1/23-5/31/24	\$7,341.49
Remit to: DALLAS, TX					<u>FYTD:</u> \$16,548.77
U.S. BANK NA	38685	10/11/2023	13926370	INVESTMENT CUSTODIAL SERVICES-AUG. 2023	\$820.00
Remit to: ST. PAUL, MN					<u>FYTD:</u> \$3,850.00

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023

CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
ULTRASERV AUTOMATED SERVICES, LLC	38563	10/04/2023	265011	COFFEE SERVICE SUPPLIES-ANNEX 1	\$343.21
		10/04/2023	265013	COFFEE SERVICE SUPPLIES-CITY HALL/PUBLIC WORKS LOCATION	
	38820	10/04/2023	265015	COFFEE SERVICE SUPPLIES-CITY YARD	
		10/25/2023	265170	COFFEE SERVICE SUPPLIES-CITY HALL/PUBLIC WORKS LOCATION	\$764.39
		10/25/2023	265186	COFFEE SERVICE SUPPLIES-CITY HALL/BREAK ROOM LOCATION	
		10/25/2023	265289	COFFEE SERVICE SUPPLIES-ANNEX 1	
Remit to: COSTA MESA, CA					<u>FYTD:</u> \$5,481.94
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA	38756	10/18/2023	820230465 (a)	DIGALERT TICKETS SUBSCRIPTION SERVICE-AUG. 2023	\$227.00
		10/18/2023	820230465 (b)	DIGALERT TICKETS SUBSCRIPTION SERVICE-AUG. 2023	
		10/18/2023	820230465 (c)	DIGALERT TICKETS SUBSCRIPTION SERVICE-AUG. 2023	
		10/18/2023	820230465 (d)	DIGALERT TICKETS SUBSCRIPTION SERVICE-AUG. 2023	
	246473	10/18/2023	23-240684 (a)	CA STATE FEE FOR REGULATORY COSTS TO SAFE EXCAVATION BOARD	\$96.10
		10/18/2023	23-240684 (b)	CA STATE FEE FOR REGULATORY COSTS TO SAFE EXCAVATION BOARD	
		10/18/2023	23-240684 (c)	CA STATE FEE FOR REGULATORY COSTS TO SAFE EXCAVATION BOARD	
		10/18/2023	23-240684 (d)	CA STATE FEE FOR REGULATORY COSTS TO SAFE EXCAVATION BOARD	
Remit to: CORONA, CA					<u>FYTD:</u> \$1,333.01

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



**City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023**

CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>		
UNITED RENTALS, INC.	246371	10/04/2023	220959369-001	23-0936/23-0938-LIFT RENTAL-PUBLIC SAFTEY BLDG.	\$3,414.68		
		10/04/2023	222102769-001	LIFT RENTAL-CONFERENCE & REC CENTER			
		10/04/2023	222745461-001	LIFT RENTAL-PUBLIC SAFTEY BLDG.			
		10/04/2023	223097974-001	LIFT RENTAL FOR MEDIA-STATE OF THE CITY-CONFERENCE & REC CENTER			
Remit to: RIVERSIDE, CA					FYTD: \$4,631.15		
UNITED ROTARY BRUSH CORP	38686	10/11/2023	CI288575	STREET SWEEPER BRUSHES & ACCESSORIES	\$5,084.64		
		10/11/2023	CI293616	STREET SWEEPER BRUSHES & ACCESSORIES			
		10/11/2023	CI293794	STREET SWEEPER BRUSHES & ACCESSORIES			
		10/11/2023	CI293795	STREET SWEEPER BRUSHES & ACCESSORIES			
		10/11/2023	CI294157	STREET SWEEPER BRUSHES & ACCESSORIES			
		10/11/2023	CI294431	STREET SWEEPER BRUSHES & ACCESSORIES			
		10/11/2023	CI294729	STREET SWEEPER BRUSHES & ACCESSORIES			
		10/11/2023	CI296226	STREET SWEEPER BRUSHES & ACCESSORIES			
		10/11/2023	CI303786	STREET SWEEPER BRUSHES & ACCESSORIES			
		38757	10/18/2023	CI303137		STREET SWEEPER BRUSHES & ACCESSORIES	\$1,245.24
			10/18/2023	CI303487		STREET SWEEPER BRUSHES & ACCESSORIES	
		38821	10/25/2023	CI304082		STREET SWEEPER BRUSHES & ACCESSORIES	\$3,406.09
			10/25/2023	CI304371		STREET SWEEPER BRUSHES & ACCESSORIES	
			10/25/2023	CI304474		STREET SWEEPER BRUSHES & ACCESSORIES	
	10/25/2023	CI304482	STREET SWEEPER BRUSHES & ACCESSORIES				
Remit to: DALLAS, TX					FYTD: \$24,340.38		
UNITED SITE SERVICES OF CA, INC.	38687	10/11/2023	114-13699699	FENCE RENTAL AT ANIMAL SHELTER 09/21-10/18/23	\$106.40		
Remit to: DALLAS, TX					FYTD: \$425.60		

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



**City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023**

CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
VALDOVINOS, LUPITA	38688	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
VALLEY WIDE TOWING, LLC	38822	10/25/2023	23-14071	EVIDENCE TOWING FOR PD	\$491.75
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$6,493.50
VERDUGO, JAMES	38564	10/04/2023	10/7 - 10/11/23	TRAVEL PER DIEM - 2023 INTERNATIONAL CODE COUNCIL CONFERENCE & E	\$288.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$288.00
VOYAGER FLEET SYSTEM, INC.	38689	10/11/2023	8693366022334	FUEL CARD CHARGES-PD TRAFFIC MOTORS	\$2,758.15
Remit to: HOUSTON, TX					<u>FYTD:</u> \$37,755.60
VULCAN MATERIALS CO, INC.	38565	10/04/2023	73772546	ASPHALTIC EMULSION MATERIALS	\$499.19
		10/04/2023	73775390	ASPHALTIC EMULSION MATERIALS	
		10/04/2023	73775391	ASPHALTIC EMULSION MATERIALS	
		10/04/2023	73778509	ASPHALTIC EMULSION MATERIALS	
		10/04/2023	73780341	ASPHALTIC EMULSION MATERIALS	
	38690	10/11/2023	73783074	ASPHALTIC EMULSION MATERIALS	\$199.14
		10/11/2023	73783075	ASPHALTIC EMULSION MATERIALS	
Remit to: LOS ANGELES, CA					<u>FYTD:</u> \$6,512.32
WARREN, BRANDON	38691	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: RIVERSIDE, CA					<u>FYTD:</u> \$500.00
WASSO, GINGER	246529	10/25/2023	2003688.047	DEPOSIT REFUND-TOWNGATE COMM. CTR	\$230.50
Remit to: PERRIS, CA					<u>FYTD:</u> \$230.50

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023

CHECKS UNDER \$25,000

Vendor Name	Check/EFT Number	Payment Date	Inv Number	Invoice Description	Payment Amount
WATSON, DEANNA	246413	10/04/2023	R23-176532	ANIMAL SERVICES REFUND LICENSE FEE	\$35.00
Remit to: MORENO VALLEY, CA					FYTD: \$35.00
WAXIE ENTERPRISES, LLC DBA WAXIE SANITARY SUPPLY	38692	10/11/2023	81997983	JANITORIAL SUPPLIES FOR PD	\$262.05
	38823	10/25/2023	82045385	JANITORIAL SUPPLIES FOR PD	\$2,155.55
Remit to: LOS ANGELES, CA					FYTD: \$9,259.70
WEST COAST ARBORISTS, INC.	38693	10/11/2023	204270	SD LANDSCAPE TREE & STUMP REMOVAL ZONE 04	\$4,036.00
		10/11/2023	204272	SD TREE MAINTENANCE & STUMP REMOVAL ZONE 07	
		10/11/2023	204273	SD LANDSCAPE TREE & STUMP REMOVAL ZONE E-8	
		10/11/2023	204274	SD LANDSCAPE TREE MAINTENANCE - CREW RENTAL ZONE E-7	
	38694	10/11/2023	204775	TREE & STUMP REMOVAL SERVICES - JFK PARK	\$973.50
	38758	10/18/2023	205307	TREE & STUMP REMOVAL SERVICES - VICTORIANO PARK	\$3,295.00
		10/18/2023	205312	TREE & STUMP REMOVAL SERVICES - SUNNYMEAD PARK	
Remit to: ANAHEIM, CA					FYTD: \$15,988.15
WEST COAST SHOPPING CART SERVICE, INC.	246474	10/18/2023	23-029	SHOPPING CART RETRIEVAL SERVICES-SEP. 2023	\$3,204.00
Remit to: WEST COVINA, CA					FYTD: \$20,345.00
WESTERN MUNICIPAL WATER DISTRICT	246475	10/18/2023	23821-018257 SEP	WATER CHARGES-MARCH FIELD PARK COMMUNITY CTR. LANDSCAPE	\$4,872.55
		10/18/2023	23821-018258 SEP	WATER CHARGES-MARCH FIELD PARK COMMUNITY CTR.-BLDG. 938	
		10/18/2023	23866-018292 SEP	WATER CHARGES-SKATE PARK	
		10/18/2023	24753-018620 SEP	WATER CHARGES-M.A.R.B. BALLFIELDS	
Remit to: ARTESIA, CA					FYTD: \$22,543.71

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



**City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023**

CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
WILLDAN FINANCIAL SERVICES	38824	10/25/2023	010-56234	CARES ACT GRANT ADMINISTRATION SERVICES-SEP. 2023	\$17,654.50
		10/25/2023	010-56235	HOME-ARP GRANT ADMINISTRATION SERVICES-SEP. 2023	
		10/25/2023	010-56236	ERAP GRANT ADMINISTRATION SERVICES-SEP. 2023	
Remit to: TEMECULA, CA					<u>FYTD:</u> \$110,529.50
WSP USA, INC.	38695	10/11/2023	26#1345703	804 0017 MORENO MDP LINE F-18 AND F-19	\$2,848.67
Remit to: SAN BERNARDINO, CA					<u>FYTD:</u> \$58,192.29
Yanez, ERIKA YVONNE	38696	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
Z&K CONSULTANTS, INC	246441	10/11/2023	69308	801 0097 CITYWIDE PVEMT RHAB PGM FY 26/27 TO FY 30/31	\$17,954.00
Remit to: CORONA, CA					<u>FYTD:</u> \$139,762.00
ZAMORA, HAROLD	246444	10/11/2023	10/15 - 10/18/23	TRAVEL PER DIEM - INTELLIGENT TRANSP SOCIETY (ITS) ANNUAL MTG	\$633.32
		10/11/2023	10/2 - 10/7/23	TRAVEL PER DIEM & MILEAGE - CAL BERKELY FUNDAMENTAL OF TRAFFIC E	
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$633.32
ZARAGOZA, VERONICA	38697	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00
ZUMAR INDUSTRIES, INC.	38759	10/18/2023	99785	PARK SIGNS	\$11,769.45
Remit to: SANTA FE SPRINGS, CA					<u>FYTD:</u> \$11,769.45
ZUNIGA, MARIA	38698	10/11/2023	OCTOBER 2023	MOVALEARNS PROGRAM STIPEND-OCTOBER 2023	\$250.00
Remit to: MORENO VALLEY, CA					<u>FYTD:</u> \$500.00

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



City of Moreno Valley
Payment Register
For Period 10/1/2023 through 10/31/2023

CHECKS UNDER \$25,000

<u>Vendor Name</u>	<u>Check/EFT Number</u>	<u>Payment Date</u>	<u>Inv Number</u>	<u>Invoice Description</u>	<u>Payment Amount</u>
TOTAL CHECKS UNDER \$25,000					\$1,156,050.58
GRAND TOTAL					\$13,928,447.64

Attachment: 2023-OctoberPaymentRegister (6467 : OCTOBER PAYMENT REGISTER 2023)



Report to City Council

TO: Mayor and City Council Acting in its Capacity as Members of the Moreno Valley Successor Agency (SA)

FROM: Brian Mohan, Assistant City Manager

AGENDA DATE: December 5, 2023

TITLE: RESOLUTION OF THE CITY OF MORENO VALLEY SERVING AS THE SUCCESSOR AGENCY TO THE COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF MORENO VALLEY APPROVING THE RECOGNIZED OBLIGATION PAYMENT SCHEDULE AND ADMINISTRATIVE BUDGET FOR THE PERIOD OF JULY 1, 2024 THROUGH JUNE 30, 2025 (ROPS 24-25) (RESO. NO. SA 2023-XX)

RECOMMENDED ACTION

Recommendations: That the City Council as Successor Agency:

1. Adopt Resolution No. SA 2023-XX. A Resolution of the City Council of the City of Moreno Valley, California, serving as Successor Agency to the Community Redevelopment Agency of the City of Moreno Valley Approving the Recognized Obligation Payment Schedule and Administrative Budget for the Period of July 1, 2024 through June 30, 2025 (ROPS 24-25) and Authorizing the City Manager acting for the Successor Agency or his/her Designee to Make Modifications Thereto; and
2. Authorize the City Manager acting for the Successor Agency or his Designee to make modifications to the Schedule; and
3. Authorize the transmittal of the ROPS 24-25, for the period of July 1, 2024 through June 30, 2025 ("Exhibit A"), including Administrative Budget ("Exhibit B") for the said period, to the Countywide Oversight Board for County of Riverside for review and approval.

SUMMARY

This report recommends adoption of the Proposed Resolution approving the Recognized Obligation Payment Schedule (ROPS 24-25) including the Administrative Budget, for the period of July 1, 2024 through June 30, 2025.

As successor agency (“Successor Agency”) to the Community Redevelopment Agency (RDA) of the City of Moreno Valley, the City is responsible for winding down the affairs of the former RDA including disposing of its assets, making payments and performing other obligations owed for Enforceable Obligations. The Recognized Obligation Payment Schedules certain applicable periods provide the details necessary for the City serving as the Successor Agency to fulfill the former RDA’s legally binding and enforceable agreements as required by law.

This item was noticed on the November 28, 2023 Finance Subcommittee agenda for review and discussion.

DISCUSSION

ABX1 26 requires the Successor Agency to approve a Recognized Obligation Payment Schedule (“ROPS”) for each Fiscal Year. The required content of the ROPS, set forth in Health and Safety Code Section 34177(l)(1), details all of the Successor Agency’s legally binding and enforceable obligations, anticipated payments, and sources of payments. Recognized obligations include bonds, loans, judgments, settlements, any legally binding and enforceable agreements or contracts, and contracts and agreements for agency administration or operation. AB 1484 further clarifies certain matters associated with the dissolution of RDAs and addresses substantive issues related to administrative processes, affordable housing activities, and repayment of loans from communities, use of existing bond proceeds, and the disposition or retention of Successor Agency assets.

In order to facilitate the wind down process, on behalf of the Successor Agency, the City Council has adopted the following Resolutions:

- Resolution No. 2012-13, adopted on February 28, 2012, approving a Recognized Obligation Payment Schedule for the period of January 1, 2012 through June 30, 2012.
- Resolution No. 2012-22, adopted on April 10, 2012, approving a Second Recognized Obligation Payment Schedule for the period of July 1, 2012 through December 31, 2012.
- Resolution No. 2012-71, adopted on August 28, 2012, approving a Second Recognized Obligation Payment Schedule for the period of January 1, 2013 through June 30, 2013.
- Resolution No. SA 2013-02, adopted on February 26, 2013, approving a Recognized Obligation Payment Schedule (ROPS 13-14 A) for the period of July

1, 2013 through December 31, 2013.

- Resolution No. SA 2013-09, adopted on September 24, 2013, approving a Recognized Obligation Payment Schedule (ROPS 13-14 B) for the period of January 1, 2014 through June 30, 2014.
- Resolution No. SA 2014-01, adopted on February 25, 2014, approving a Recognized Obligation Payment Schedule (ROPS 14-15 A) for the period of July 1, 2014 through December 31, 2014.
- Resolution No. SA 2014-02, adopted on September 23, 2014, approving a Recognized Obligation Payment Schedule (ROPS 14-15 B) for the period of January 1, 2015 through June 30, 2015.
- Resolution No. SA 2015-01, adopted on February 24, 2015, approving a Recognized Obligation Payment Schedule (ROPS 15-16 A) for the period of July 1, 2015 through December 31, 2015.
- Resolution No. SA 2015-02, adopted on September 22, 2015, approving a Recognized Obligation Payment Schedule (ROPS 15-16 B) for the period of January 1, 2016 through June 30, 2016.
- Resolution No. SA 2016-01, adopted on January 19, 2016, approving a Recognized Obligation Payment Schedule (ROPS 16-17) for the period of July 1, 2016 through June 30, 2017.
- Resolution No. SA 2016-02, adopted on September 6, 2016, approving a Recognized Obligation Payment Schedule (ROPS 16-17 B) for the period of January 1, 2017 through June 30, 2017.
- Resolution No. SA 2016-04, adopted on December 12, 2016, approving a Recognized Obligation Payment Schedule (ROPS 17-18) for the period of July 1, 2017 through June 30, 2018.
- Resolution No. SA 2017-05, adopted on September 19, 2017, approving a Recognized Obligation Payment Schedule (ROPS 17-18 B) for the period of January 1, 2018 through June 30, 2018.
- Resolution No. SA 2018-01, adopted on January 16, 2018, approving a Recognized Obligation Payment Schedule (ROPS 18-19) for the period of July 1, 2018 through June 30, 2019.
- Resolution No. SA 2018-04, adopted on September 4, 2018, approving a Recognized Obligation Payment Schedule (ROPS 18-19 B) for the period of January 1, 2019 through June 30, 2019.

- Resolution No. SA 2018-06, adopted on December 18, 2018, approving a Recognized Obligation Payment Schedule (ROPS 19-20) for the period of July 1, 2019 through June 30, 2020.
- Resolution No. SA 2019-02, adopted on August 20, 2019, approving a Recognized Obligation Payment Schedule (ROPS 19-20 B) for the period of January 1, 2020 through June 30, 2020.
- Resolution No. SA 2019-03, adopted on December 3, 2019, approving a Recognized Obligation Payment Schedule (ROPS 20-21) for the period of July 1, 2020 through June 30, 2021.
- Resolution No. SA 2020-02, adopted on July 7, 2020, approving a Recognized Obligation Payment Schedule (ROPS 20-21 B) for the period of January 1, 2021 through June 30, 2021.
- Resolution No. SA 2021-01, adopted on January 5, 2021, approving a Recognized Obligation Payment Schedule (ROPS 21-22) for the period of July 1, 2021 through June 30, 2022.
- Resolution No. SA 2021-04, adopted on December 7, 2021, approving a Recognized Obligation Payment Schedule (ROPS 22-23) for the period of July 1, 2022 through June 30, 2023.
- Resolution No. SA 2022-04, adopted on July 5, 2022, approving a Recognized Obligation Payment Schedule (ROPS 22-23B) for the period of January 1, 2023 through June 30, 2023.
- Resolution No. SA 2022-07, adopted on December 6, 2022, approving a Recognized Obligation Payment Schedule (ROPS 23-24) for the period of July 1, 2023 through June 30, 2024.
- Resolution No. SA 2023-05, adopted on August 15, 2023, approving a Recognized Obligation Payment Schedule (ROPS 23-24B) for the period of January 1, 2024 through June 30, 2024.

Once approved, the ROPS 24-25 will be submitted to the Successor Agency's Countywide Oversight Board for the County of Riverside ("Oversight Board") for review and approval. Upon approval by the Oversight Board, a copy of the approved ROPS will be transmitted to the County-Auditor Controller, the State Controller's Office, the State Department of Finance, and posted to the City's website.

ALTERNATIVES

1. Adopt the attached proposed resolution, which approves the Recognized Obligation Payment Schedule, including the administrative budget for the period of July 1, 2024 through June 30, 2025 and authorizing the transmittal of said Schedules to the

Oversight Board for review and approval. *Staff recommends this alternative because it allows the City serving as the Successor Agency to make required debt service payments in accordance with State legislation.*

2. Decline to adopt the attached proposed resolution which would not allow the City, serving as the Successor Agency, to maintain the operations, and fulfill debt obligations of the former RDA as required by law. *Staff does not recommend this alternative.*

FISCAL IMPACT

The Recognized Obligation Payment Schedule provides the details necessary for the City serving as the Successor Agency to fulfill the former RDA's legally binding and enforceable agreements. The ROPS 24-25 will serve as authorization to pay obligations listed during the noted period including allowable administrative costs of up to the \$250,000 Administrative Budget. With the dissolution of the former RDA, there are continued risks that the payment of certain agreements may not be approved by the California Department of Finance, which will impact the General Fund. When these costs can be considered a short-term loan from the City to the Successor Agency and thus considered an enforceable obligation of the Successor Agency, the City shall seek reimbursement as available.

NOTIFICATION

The agenda for the meeting during which this item may be considered has been posted in the three locations that have been designated for the posting of City Council agendas, in compliance with the Brown Act.

PREPARATION OF STAFF REPORT

Prepared By:
Natalia Lopez
Financial Resources Division Manager

Department Head Approval:
Brian Mohan
Assistant City Manager (Administration)

CITY COUNCIL GOALS

Revenue Diversification and Preservation. Develop a variety of City revenue sources and policies to create a stable revenue base and fiscal policies to support essential City services, regardless of economic climate.

CITY COUNCIL STRATEGIC PRIORITIES

1. Economic Development
2. Public Safety
3. Library
4. Infrastructure
5. Beautification, Community Engagement, and Quality of Life

6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

1. SA Resolution 2023-XX with Exhibits

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/28/23 8:40 AM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/28/23 8:42 AM

RESOLUTION NO. SA 2023-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, SERVING AS SUCCESSOR AGENCY TO THE COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF MORENO VALLEY APPROVING THE RECOGNIZED OBLIGATION PAYMENT SCHEDULE AND ADMINISTRATIVE BUDGET FOR THE PERIOD OF JULY 1, 2024 THROUGH JUNE 30, 2025 (ROPS 24-25), AND AUTHORIZING THE CITY MANAGER ACTING FOR THE SUCCESSOR AGENCY OR HIS/HER DESIGNEE TO MAKE MINOR MODIFICATIONS THERETO

WHEREAS, the City Council of the City of Moreno Valley agreed to serve as successor agency to the Community Redevelopment Agency of the City of Moreno Valley (“Former RDA”) commencing upon dissolution of the Former RDA on February 1, 2012 pursuant to Assembly Bill x1 26, as amended by AB 1484; and

WHEREAS, pursuant to Health and Safety Code Section 34177(l), before each fiscal period, the successor agency to a dissolved redevelopment agency such as the Former RDA is required to adopt a draft Recognized Obligation Payment Schedule (“ROPS”) that lists all of the obligations that are “enforceable obligations” within the meaning of Health and Safety Code Section 34171, and which identifies a source of payment for each such obligation from among (i) the Low and Moderate Income Housing Fund; (ii) bond proceeds; (iii) reserve balances; (iv) the administrative cost allowance; (v) revenues from rents, concessions, interest earnings, and asset sales; and (vi) the Redevelopment Property Tax Trust Fund established by the County Auditor-Controller to the extent no other source of funding is available or payment from property tax is contractually or statutorily required; and

WHEREAS, the City of Moreno Valley (“City”), acting as the successor agency to the Former RDA (“Successor Agency”) has prepared a ROPS and an administrative budget covering the period July 1, 2024 through June 30, 2025 (“ROPS 24-25”); and

WHEREAS, the draft ROPS must be concurrently submitted to the County Administrative Officer, the County Auditor-Controller, the State Department of Finance, and the Countywide Oversight Board for County of Riverside (“Oversight Board”).

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, SERVING AS THE SUCCESSOR AGENCY, DOES HEREBY RESOLVE AS FOLLOWS:

1
Resolution No. SA 2023-XX
Date Adopted: December 5, 2023

SECTION 1. RECITALS

That the foregoing recitals are incorporated into this Resolution by this reference, and constitute a material part of this Resolution.

SECTION 2. APPROVAL OF ROPS 24-25 AND ADMINISTRATIVE BUDGET

That the City Council acting on behalf of the Successor Agency hereby approve and adopt ROPS 24-25 and the related administrative budget, in substantially the form attached hereto as Exhibit "A" and Exhibit "B", respectively.

SECTION 3. TRANSMITTAL

That City staff, acting for the Successor Agency, is directed to transmit the ROPS 24-25 to the Oversight Board, County Administrative Officer, the County Auditor-Controller, and the State Department of Finance.

Section 4. OTHER ACTS

That the City Manager, acting for the Successor Agency, or his/her designee is hereby authorized to make minor modifications to the ROPS 24-25, and each officer of the City, acting for the Successor Agency, is hereby authorized and directed, jointly and severally, to execute and deliver such documents and instruments and to do such things which may be necessary or proper to effectuate the purposes of this Resolution, and any such actions previously taken by such officers are hereby ratified, approved and confirmed. Such acts shall include, but shall not be limited to, reformatting of the ROPS 24-25 as may be required by the Department of Finance or Oversight Board.

Section 5. SEVERABILITY

That if any provision of this Resolution or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this Resolution which can be given effect without the invalid provision or application, and to this end the provisions of this Resolution are severable. The City Council acting for the Successor Agency hereby declares that it would have adopted this Resolution irrespective of the invalidity of any particular portion thereof.

Section 6. EFFECTIVE DATE

That this Resolution shall take effect immediately upon adoption.

2
Resolution No. SA 2023-XX
Date Adopted: December 5, 2023

Section 7. CERTIFICATION

That the City Clerk acting for the Successor Agency shall certify to the passage of this Resolution and enter it into the book of original resolutions.

APPROVED AND ADOPTED this 5th day of December 2023.

Ulises Cabrera
Mayor
City of Moreno Valley
acting for Successor Agency

ATTEST:

Jane Halstead, City Clerk
acting for Successor Agency

APPROVED AS TO FORM:

Steve Quintanilla, City Attorney
acting for Successor Agency

3
Resolution No. SA 2023-XX
Date Adopted: December 5, 2023

Attachment: SA Resolution 2023-XX with Exhibits [Revision 1] (6444 : RESOLUTION OF THE CITY OF MORENO VALLEY SERVING AS THE

RESOLUTION JURAT

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

I, Jane Halstead, City Clerk of the City of Moreno Valley, California, do hereby certify that Resolution No. SA 2023-__ was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of December 2023 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

JANE HALSTEAD CITY CLERK

(SEAL)

4
Resolution No. SA 2023-XX
Date Adopted: December 5, 2023

Attachment: SA Resolution 2023-XX with Exhibits [Revision 1] (6444 : RESOLUTION OF THE CITY OF MORENO VALLEY SERVING AS THE

EXHIBIT "A"

ROPS 24-25 COVERING JULY 1, 2024 THROUGH JUNE 30, 2025

SEE ATTACHED

5
Resolution No. SA 2023-XX
Date Adopted: December 5, 2023

**Recognized Obligation Payment Schedule (ROPS 24-25)
Summary Filed for the July 1, 2024 through June 30, 2025 Period**

Successor Agency: Moreno Valley
County: Riverside

Current Period Requested Funding for Enforceable Obligations (ROPS Detail)	24-25A Total (July - December)	24-25B Total (January - June)	ROPS 24-25 Total
A Enforceable Obligations Funded as Follows (B+C+D)	\$ -	\$ -	\$ -
B Bond Proceeds	-	-	-
C Reserve Balance	-	-	-
D Other Funds	-	-	-
E Redevelopment Property Tax Trust Fund (RPTTF) (F+G)	\$ 1,656,585	\$ 1,578,441	\$ 3,235,025
F RPTTF	1,531,585	1,453,441	2,985,025
G Administrative RPTTF	125,000	125,000	250,000
H Current Period Enforceable Obligations (A+E)	\$ 1,656,585	\$ 1,578,441	\$ 3,235,025

Certification of Oversight Board Chairman:

Pursuant to Section 34177 (o) of the Health and Safety code, I hereby certify that the above is a true and accurate Recognized Obligation Payment Schedule for the above named successor agency.

Name Title

/s/ _____
Signature Date

Attachment: SA Resolution 2023-XX with Exhibits [Revision 1] (6444 : RESOLUTION OF THE CITY OF MORENO VALLEY SERVING AS THE

Moreno Valley
Recognized Obligation Payment Schedule (ROPS 24-25)
Report of Cash Balances July 1, 2021 through June 30, 2022
 (Report Amounts in Whole Dollars)

Pursuant to Health and Safety Code section 34177 (l), Redevelopment Property Tax Trust Fund (RPTTF) may be listed as a source of payment on the ROPS, but only to the extent no other funding source is available or when payment from property tax revenues is required by an enforceable obligation.

A	B	C		D		E			F	G	H
		Bond Proceeds		Fund Sources			Other Funds	RPTTF			
		Bonds issued on or before 12/31/10	Bonds issued on or after 01/01/11	Reserve Balance	Prior ROPS RPTTF and Reserve Balances retained for future period(s)	Rent, Grants, Interest, etc.			Non-Admin and Admin		
	ROPS 21-22 Cash Balances (07/01/21 - 06/30/22)									Comments	
1	Beginning Available Cash Balance (Actual 07/01/21) RPTTF amount should exclude A* period distribution amount*	-	-	-	-	-	-	-	-		
2	Revenue/Income (Actual 06/30/22) RPTTF amount should tie to the ROPS 21-22 total distribution from the County Auditor-Controller	-	-	-	-	-	-	-	3,246,381		
3	Expenditures for ROPS 21-22 Enforceable Obligations (Actual 06/30/22)	-	-	-	-	-	-	-	3,845,708		
4	Retention of Available Cash Balance (Actual 06/30/22) RPTTF amount retained should only include the amounts distributed as reserve for future period(s)	-	-	-	-	-	-	-	-		
5	ROPS 21-22 RPTTF Prior Period Adjustment RPTTF amount should tie to the Agency's ROPS 21-22 PPA form submitted to the CAC	No entry required							3,123		
6	Ending Actual Available Cash Balance (06/30/22) C to F = (1 + 2 - 3 - 4), G = (1 + 2 - 3 - 4 - 5)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (602,450)			

Attachment: SA Resolution 2023-XX with Exhibits [Revision 1] (6444 : RESOLUTION OF THE CITY OF

Moreno Valley
 Recognized Obligation Payment Schedule (ROPS 24-25)
 ROPS Detail July 1, 2024 through June 30, 2025

A Item #	B Project Name	C Obligation Type	D Agreement Execution Date	E Agreement Termination Date	F Payee	G Description	H Project Area	I Total Outstanding Obligation	J Retired	K ROPS 24-25 Total	ROPS 24-25A (Jul - Dec)				Q 24-25A Total	ROPS 24-25B (Jan - Jun)				W 24-25E Total	
											Fund Sources					Fund Sources					
											L Bond Proceeds	M Reserve Balance	N Other Funds	P Admin RPTTF		R Bond Proceeds	S Reserve Balance	T Other Funds	V Admin RPTTF		
3	Improvement Area No. 1 Special Tax Refunding Bonds	Bonds Issued On or Before 12/31/10	11/29/2007	10/1/2023	Wells Fargo Bank	Debt service payments for bonds issued to finance the construction of public facilities	Original Area	\$54,528,206	Y	\$-	\$-	\$-	\$1,531,585	\$125,000	\$1,656,585	\$-	\$-	\$-	\$1,453,441	\$125,000	\$1,578
13	CalPERS Retirement Liability	Unfunded Liabilities	7/1/2012	7/1/2031	The California Public Employees' Retirement System (CalPERS)	Unfunded PERS Retirement Liability Acct	Original Area	110,841	N	\$13,855	-	-	13,855	-	\$13,855	-	-	-	-	-	-
14	Retiree Medical Trust (CERBT)	Unfunded Liabilities	7/1/2012	7/1/2031	California Employers' Retiree Medical Trust(CERBT)/Cal PERS	Unfunded Retiree Medical Trust Acct	Original Area	35,695	N	\$4,461	-	-	4,461	-	\$4,461	-	-	-	-	-	-
17	Towngate Acquisition Note	Third-Party Loans	5/3/2004	6/30/2044	City of Moreno Valley	Participation Agreement	Original Area	16,026,841	N	\$1,400,000	-	-	700,000	-	\$700,000	-	-	700,000	-	-	\$700
19	Robertson's Ready Mix, Inc. OPA	OPA/DDA/Construction	9/26/2006	9/30/2028	Robertson's Ready Mix, Inc.	Owner Participation Agreement	Original Area	59,828	N	\$59,828	-	-	59,828	-	\$59,828	-	-	-	-	-	-
24	Payroll Costs/Operating Costs	Admin Costs	1/1/2015	6/30/2018	City of Moreno Valley/Employees	Successor Agency's Payroll & Operating Costs	Original Area	250,000	N	\$250,000	-	-	-	125,000	\$125,000	-	-	-	-	125,000	\$125
88	2017 Refunding of the 2007 Tax Allocation Bonds Series A	Refunding Bonds Issued After 6/27/12	8/23/2017	8/1/2038	Wells Fargo Bank	Debt service payments for bonds issued to finance various capital projects	Original Area	38,045,000	N	\$1,506,881	-	-	753,441	-	\$753,441	-	-	753,441	-	-	\$753

Attachment: SA Resolution 2023-XX with Exhibits [Revision 1] (6444 : RESOLUTION OF THE CITY OF

**Moreno Valley
Recognized Obligation Payment Schedule (ROPS 24-25)
Notes July 1, 2024 through June 30, 2025**

Item #	Notes/Comments
3	Final maturity was 10/1/23; RPTTF for final payment received in 23/24 ROPS
13	
14	
17	
19	
24	
88	

Attachment: SA Resolution 2023-XX with Exhibits [Revision 1] (6444 : RESOLUTION OF THE CITY OF MORENO VALLEY SERVING AS THE

EXHIBIT "B"

ADMINISTRATION BUDGET COVERING JULY 1, 2024 THROUGH JUNE 30, 2025

SEE ATTACHED

6
Resolution No. SA 2023-XX
Date Adopted: December 5, 2023

Attachment: SA Resolution 2023-XX with Exhibits [Revision 1] (6444 : RESOLUTION OF THE CITY OF MORENO VALLEY SERVING AS THE

Exhibit "B"

Administrative Budget

Expense Classifications	FY 2023/24 Amended Budget	FY 2024/25 Proposed Budget
Salaries/Benefits	\$ 92,754	\$ 97,789
Professional Services	150,446	145,411
Administrative Expenses	6,800	6,800
Total Administrative Budget	\$ 250,000	\$ 250,000



Report to City Council

TO: Mayor and City Council

FROM: Launa Jimenez, Chief Financial Officer

AGENDA DATE: December 5, 2023

TITLE: SECOND READING AND ADOPTION OF ORDINANCE NO. 1004, AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, LEVYING A SPECIAL TAX IN CONNECTION WITH COMMUNITY FACILITIES DISTRICT NO. 2023-01 (PUBLIC SAFETY SERVICES) AND TAKING CERTAIN RELATED ACTIONS

RECOMMENDED ACTION

Recommendation:

1. Conduct the second reading by title only and adopt Ordinance No. 1004.

SUMMARY

This item is the second reading of the Ordinance related to formation of Community Facilities District (CFD) No. 2023-01 (Public Safety Services) (the "District"). The Ordinance was introduced at the November 21, 2023 City Council meeting.

DISCUSSION

On November 21, 2023, the City Council established CFD No. 2023-01 (Public Safety Services) and introduced Ordinance No. 1004. The District was created to provide both the residential and non-residential development community with an alternative funding tool to provide funding for public safety services impacted by new development.

The Ordinance authorizes the levy of a special tax on those properties included in CFD No. 2023-01 and outlines the use of the special tax revenue, accountability measures, and other actions related to administration of the CFD. Revenue from the special tax will fund increased public safety operational costs resulting from new development.

After the formation of the District, the landowners of residential housing tract 38237

voted in favor of authorizing the levy of a special tax, collected on the property tax bill, against property in their development project. The parcel in Tract 38237 is the only parcel included in the CFD at this time.

ALTERNATIVES

1. Conduct the second reading by title only and adopt the Ordinance. *Staff recommends this alternative since it will provide an alternate funding option for the development community.*
2. Provide revisions to the Ordinance and direct staff to restart the adoption process. *Staff does not recommend this alternative because it may delay the development community from satisfying their conditions of approval.*
3. Do not adopt the Ordinance. *Staff does not recommend this alternative because it may delay the development community from satisfying their conditions of approval.*

FISCAL IMPACT

Third party costs associated with formation of the District are projected at \$35,000 for a special tax consultant, special legal counsel, legal notice publication costs, recording costs, and other related expenses. Sufficient funds exist in the FY 2023/24 Adopted Operating Budget of the Special Districts Administrative Fund 2006-30-79-25701 to fund the costs.

NOTIFICATION

The agenda was posted in accordance with the Brown Act.

PREPARATION OF STAFF REPORT

Prepared By:
Felicia London
Special Districts Division Manager

Department Head Approval:
Launa Jimenez
Chief Financial Officer/City Treasurer

CITY COUNCIL GOALS

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

1. Economic Development
2. Public Safety

- 3. Library
- 4. Infrastructure
- 5. Beautification, Community Engagement, and Quality of Life
- 6. Youth Programs

Objective 4.2: Develop and maintain a comprehensive Infrastructure Plan to invest in and deliver City infrastructure.

Objective 5.2: Promote the installation and maintenance of cost effective, low maintenance landscape, hardscape and other improvements which create a clean, inviting community.

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

- 1. Ordinance Levying a Special Tax

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/28/23 8:00 AM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/28/23 8:41 AM

ORDINANCE NO. 1004

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, LEVYING A SPECIAL TAX IN CONNECTION WITH COMMUNITY FACILITIES DISTRICT NO. 2023-01 (PUBLIC SAFETY SERVICES) AND TAKING CERTAIN RELATED ACTIONS

The City Council of the City of Moreno Valley, California, the legislative body of Community Facilities District No. 2023-01 (Public Safety Services), does hereby ordain as follows:

SECTION 1. FINDINGS.

- A. The Mello-Roos Community Facilities Act of 1982 (Government Code Section 53311 *et seq.*) (the “Act”) authorizes the City Council of the City of Moreno Valley (the “City Council”) to establish a community facilities district to finance certain public safety services within the district.
- B. By its prior resolution, the City Council established Community Facilities District No. 2023-01 (Public Safety Services) (the “CFD”).
- C. By its prior resolution, the City Council declared and certified the results of an election at which the landowners of the CFD approved a special tax in connection with the CFD (the “Special Tax”) and an appropriations limit for the CFD.
- D. The City Council now desires to levy and impose the Special Tax and to take other related actions.

SECTION 2. LEVY OF SPECIAL TAX.

An annual Special Tax is levied pursuant to Section 53340 of the Act against all non-exempt parcels of real property within the CFD. The rate and method of apportionment of the Special Tax are described in Exhibit A to this Ordinance, which is incorporated herein by reference (the “Rate and Method of Apportionment”).

The Special Tax will be collected in the same manner as ordinary ad valorem property taxes are collected and shall be subject to the same penalties and the same procedure, sale, and lien priority in case of delinquency as is provided for ad valorem taxes. Notwithstanding the forgoing, any Special Taxes that cannot be collected on the County tax roll, or are not so collected, may be collected through direct billing by the City.

Under no circumstances will the Special Tax levied in any fiscal year against any parcel be increased as a consequence of delinquency or default by the owner or owners of any other parcel or parcels within the CFD by more than 10 percent above the amount that would have been levied in that fiscal year had there never been any such

delinquencies or defaults. This tax may not be prepaid. It is the intention of this Ordinance that the tax apply to parcels currently in the CFD, as well as to any parcels that may in the future be annexed to the CFD.

SECTION 3. USE OF TAX.

In addition to the administrative expenses described in the Rate and Method of Apportionment, proceeds of the Special Tax may be used to fund:

Police protection services; fire protection and suppression services; and paramedic services, to the extent such services are in addition to services already provided at the time CFD No. 2023-01 is created and do not supplant existing services.

Fundable costs include, but are not limited to: (i) direct costs for such services, (ii) salaries and benefits of staff providing such services, (iii) expenses related to equipment, apparatus, and supplies related to these services, (iv) administrative and overhead costs, including staff time, associated with providing such services, and (v) lifecycle costs associated with the repair and replacement of facilities and improvements used to provide such services.

SECTION 4. ACCOUNTABILITY MEASURES.

The Special Tax will be subject to the following accountability measures:

- (i) Proceeds of the Special Tax will be deposited in a special account and used only for the purpose of financing the costs identified in Section 3 of this Ordinance; and
- (ii) An annual report will be filed by the Special Districts Division of the Financial and Management Services Department of the City at least once a year containing a description of the amount of funds in the Special Account and the status of any costs identified in Section 3 of this Ordinance.

SECTION 5. ADMINISTRATION.

The Special Districts Division of the Financial and Management Services Department, which is located at 14177 Frederick Street, Moreno Valley, California 92553 and can be telephoned at 951.413.3470 will be responsible for annually preparing a current roll of special tax levy obligations by assessor's parcel number and will be responsible for estimating future special tax levies pursuant to Section 53340.2 of the Act.

SECTION 6. APPROPRIATIONS LIMIT.

The City Council establishes an appropriations limit for the CFD, pursuant to Article XIII B, Section 8(h) of the California Constitution, at \$100 Million. Such limit shall be

adjusted for changes in the cost of living, or changes in population, pursuant to Section 53325.7 of the Act.

SECTION 7. NOTICE OF SPECIAL TAX LIEN.

Upon recordation of a notice of special tax lien pursuant to Section 3114.5 of the Streets and Highways Code, a continuing lien to secure each levy of the Special Tax shall attach to all nonexempt real property in the CFD and this lien shall continue in force and effect until collection of the tax by the legislative body ceases. The recordation of such notice is directed by the City Council.

SECTION 8. INTERPRETATION.

The CFD Administrator is authorized to issue such interpretations of this Ordinance as he or she feels is necessary or useful to administer the Special Tax. Any such interpretations may be ratified or disapproved by resolution of the City Council, but shall be treated as official interpretations in the absence of Council action.

SECTION 9. CORRECTION OF ERRORS.

If a Special Tax is calculated or applied in error with respect to a parcel, the CFD Administrator is authorized to modify or correct the Special Tax applied, and to issue a credit or refund as appropriate. The CFD Administrator will respond in writing to any written request from a taxpayer for a modification or correction. Any such written response may be appealed by the taxpayer through the filing of a claim following the normal claims procedures of the City.

SECTION 10. SEVERABILITY.

If any section, subsection, sentence, clause or phrase of this ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of the ordinance. The City Council hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause and phrase hereof, irrespective of the fact that any one or more of the sections, subsections, sentences, clauses or phrases hereof be declared invalid or unconstitutional.

SECTION 11. EFFECT OF ENACTMENT.

Except as specifically provided herein, nothing contained in this ordinance shall be deemed to modify or supersede any prior enactment of the City Council which addresses the same subject addressed herein.

SECTION 12. NOTICE OF ADOPTION.

Within fifteen days after the date of adoption hereof, the City Clerk of the City of Moreno Valley shall certify to the adoption of this ordinance and cause it to be posted in three public places within the city.

SECTION 13. EFFECTIVE DATE.

This ordinance shall take effect thirty days after the date of its adoption.

APPROVED AND ADOPTED this 5th day of December 2023.

Mayor of the City of Moreno Valley

ATTEST:

City Clerk of the City of Moreno Valley

APPROVED AS TO FORM:

City Attorney

Attachment: Ordinance Levying a Special Tax [Revision 3] (6449 : SECOND READING AND ADOPTION OF ORDINANCE NO. 1004, AN

ORDINANCE JURAT

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

I, Jane Halstead, City Clerk of the City of Moreno Valley, California, do hereby certify that Ordinance No. 1004 had its first reading on November 21, 2023, and had its second reading on December 5, 2023, and was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of December 2023 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro-Tem and Mayor)

CITY CLERK

(SEAL)

5
Ordinance No. 1004
Date Adopted: December 5, 2023

**RATE AND METHOD OF APPORTIONMENT
FOR CITY OF MORENO VALLEY
COMMUNITY FACILITIES DISTRICT NO. 2023-01
(PUBLIC SAFETY SERVICES)**

A Special Tax shall be levied and collected in City of Moreno Valley Community Facilities District No. 2023-01 (Public Safety Services) (“CFD No. 2023-01”) each Fiscal Year, in an amount determined by the application of the procedures below. All of the Taxable Property (as defined below) in CFD No. 2023-01, unless exempted by law or by the provisions hereof, shall be taxed for the purposes, to the extent and in the manner herein provided.

A. DEFINITIONS

The terms hereinafter set forth have the following meaning:

“Accessory Dwelling Unit” or “ADU” means a secondary residential unit of limited size, as defined in California Government Code Section 65852.2, as may be amended from time to time, that is accessory to a single-unit dwelling. The ADU may be on the same Assessor’s Parcel as the single-unit dwelling or on a separate Assessor’s Parcel. For purposes of clarification, where an ADU and primary Unit are on the same Assessor’s Parcel, the ADU located on such Assessor’s Parcel is considered a separate Unit from the primary Unit on such Assessor’s Parcel for purposes of the Special Tax. Should an Assessor’s Parcel contain only an ADU, such Assessor’s Parcel will be taxed as an ADU only.

“Acre or Acreage” means the land area of an Assessor’s Parcel as shown on an Assessor’s Parcel Map or in the Assessor’s Data for each Assessor’s Parcel. In the event the Assessor’s Parcel Map or Assessor’s Data shows no Acreage, the Acreage for any Assessor’s Parcel shall be determined by the CFD Administrator based upon the applicable final map, parcel map, condominium plan, or other recorded County parcel map. If the preceding maps are not available, the Acreage of an Assessor’s Parcel may be determined utilizing GIS.

“Act” means the Mello-Roos|Community Facilities Act of 1982, as amended (California Government Code Sec. 53311 *et seq.*).

“Administrative Expenses” means the actual or reasonably estimated costs directly related to the administration of CFD No. 2023-01 including, but not limited to, the following: the costs of computing the Annual Special Tax Requirement and of preparing the Special Tax collection schedules; the costs of collecting the Special Tax, including any charges levied by the County Auditor’s Office, Tax Collector’s Office or Treasurer’s Office; the costs of the City or designee in complying with the disclosure requirements under California law (including the Act), including public inquiries regarding the Special Tax; the costs of the City or designee related to an appeal of the Special Tax; and the costs of commencing and pursuing to completion any action arising from any delinquent Special Tax in CFD No. 2023-01.

“Annual Services Costs” means the amounts required to pay for the services authorized to be funded by CFD No. 2023-01.

“Annual Special Tax Requirement” means that amount with respect to CFD No. 2023-01 determined by the City Council or designee as required in any Fiscal Year to pay: (1) the Administrative Expenses, (2) the Annual Services Costs, (3) any amount required to establish or replenish any reserve or replacement fund established in connection with CFD No. 2023-01, and (4) any reasonably anticipated delinquent Special Tax based on the delinquency rate for any Special Tax levied in the previous Fiscal Year.

“Assessor’s Data” means Units, Building Square Footage, Acreage, or other information contained in the records of the County Assessor for each Assessor’s Parcel.

“Assessor’s Parcel” or **“Parcel”** means a lot or parcel shown in an Assessor’s Parcel Map with an assigned Assessor’s Parcel Number.

“Assessor’s Parcel Map” means an official map of the Assessor of the County designating parcels by Assessor’s Parcel Number.

“Assessor’s Parcel Number” means, with respect to an Assessor’s Parcel, that number assigned to such Assessment’s Parcel by the County Assessor for purposes of identification.

“Building Square Foot(age)” means the structure square footage as shown on the building permit issued or as contained in the Assessor’s Data.

“CFD Administrator” means an official of the City, or designee thereof, responsible for determining the Annual Special Tax Requirement and providing for the levy and collection of the Special Taxes.

“CFD No. 2023-01” means the City of Moreno Valley Community Facilities District No. 2023-01 (Public Safety Services).

“City” means the City of Moreno Valley.

“City Council” means the City Council of the City, acting as the legislative body of CFD No. 2023-01.

“County” means the County of Riverside.

“County Assessor” means the County Assessor of the County.

“Developed Property” means, in any Fiscal Year, all Taxable Property in CFD 2023-01 that is (i) improved with one or more structures that were in place on March 1 of the preceding Fiscal Year and were built subsequent to the inclusion of the territory of the Taxable Property in CFD No. 2023-01, and/or (ii) property for which a building permit for new construction was issued by the applicable land use authority prior to March 1 of the preceding Fiscal Year.

“Final Subdivision Map” means a subdivision of property created by recordation of a final subdivision map, parcel map or lot line adjustment, approved by the City pursuant to the Subdivision Map Act (California Government Code Section 66410 *et seq.*) or recordation of a condominium plan pursuant to California Civil Code 4120, that creates individual lots for which building permits may be issued without further subdivision of such property.

“Fiscal Year” means the period starting July 1 and ending on the following June 30.

“GIS” means a geographic information system.

“Maximum Annual Special Tax” means the maximum Special Tax authorized to fund the Annual Special Tax Requirement in any Fiscal Year that may apply to Taxable Property as described in Section C.

“Mixed-Use Property” means all Assessor’s Parcels of Developed Property that is improved with (or has issued building permits for or has a combination of improvements and building permits for) more than one Property Type (whether in a single building or separate buildings). For an Assessor’s Parcel of Mixed-Use Property, each Property Type is subject to taxation pursuant to section C below.

“Multi-Family Residential Property” means all Assessor’s Parcels of Developed Property that either (i) include two or more Units (aside from ADUs, if any) or (ii) include only a single Unit of a larger structure that is part of condominium project as that term is defined in Civil Code Section 4125.

“Non-Residential Property” means all Assessor’s Parcel of Developed Property with commercial, industrial, institutional, office, hotel or other structures aside from Units (and aside from appurtenances to Units such as residential hallways, laundry rooms, mailrooms, residential lobbies, and the like).

“Property Owner’s Association” means any property owner’s association. As used in this definition, a Property Owner’s Association includes any home-owner’s association, condominium owner’s association, master or sub-association or non-residential owner’s association.

“Property Owner’s Association Property” means any property within the boundaries of CFD No. 2023-01 which is (a) owned by a Property Owner’s Association or (b) designated with specific boundaries and Acreage on a Final Subdivision Map as property owner association property.

“Property Type” means any of the land use categories listed in Table 1.

“Proportionately” means for Taxable Property that the ratio of the Special Tax levy to the Maximum Annual Special Tax is equal for all Assessors’ Parcels of Taxable Property levied within each Property Type within CFD No. 2023-01.

“Public Property” means any property within the boundaries of CFD No. 2023-01 which (i) is owned by a public agency, (ii) has been irrevocably offered for dedication to a public agency, or (iii) is designated with specific boundaries and Acreage on a Final Subdivision Map as property which will be owned by a public agency. For purposes of this definition, a public agency includes the federal government, the State, the County, the City, school districts, or any other public agency.

“Single Family Residential Property” means, in any Fiscal Year, all Assessor’s Parcels of Developed Property that (i) contains only one dwelling unit, aside from ADUs, if any, and (ii) is not classified as Multi-Family Residential Property.

“Special Tax” means the amount levied in each Fiscal Year on each Assessor’s Parcel of Taxable Property to fund the Annual Special Tax Requirement.

“State” means the State of California.

“Tax Escalation Factor” means the greater of the increase in the annual percentage change in the Consumer Price Index (CPI) for All Urban Consumers for the Riverside-San Bernardino-Ontario

County Region as published by the Department of Labor's Bureau of Labor Statistics or five percent (5%). If the CPI for the Riverside-San Bernardino-Ontario County area is discontinued, the CFD administrator may replace it with a similar index for the purposes of calculating the Annual Escalation Factor.

"Tax Zone" means a mutually exclusive geographic area within which the Special Tax may be levied pursuant to this Rate and Method of Apportionment. ***All the Taxable Property within CFD No. 2023-01 at the time of its formation is within Tax Zone No. 1.*** Additional Tax Zones may be created when property is annexed to CFD No. 2023-01, and a separate Maximum Annual Special Tax shall be identified for property within each new Tax Zone at the time of such annexation. The Assessor's Parcels included within a new Tax Zone when such Parcels are annexed to CFD No. 2023-01 shall be identified by Assessor's Parcel number in the annexation documents at the time of annexation.

"Taxable Property" means all of the Assessor's Parcels within the boundaries of CFD No. 2023-01 that are not exempt from the Special Tax pursuant to law or Section E below.

"Undeveloped Property" means all of the Assessor's Parcels within the boundaries of CFD No. 2023-01 that are not Developed Property.

"Unit" means any individual, townhome, condominium, apartment, including each separate living area within a half-plex, duplex, triplex, fourplex, or other residential structure. An Accessory Dwelling Unit on a Parcel of Single Family Residential Property shall be considered a separate Unit for purposes of calculating the Special Tax.

"Welfare Exempt Property" means, in any Fiscal Year, all Parcels within the boundaries of CFD No. 2023-01 that have been granted a welfare exemption by the County under subdivision (g) of Section 214 of the Revenue and Taxation Code.

B. DETERMINATION OF TAXABLE PARCELS

On, or about, July 1 of each Fiscal Year, the CFD Administrator shall determine the Annual Special Tax Requirement for that Fiscal Year and shall identify each parcel of Taxable Property within CFD 2023-01. The property type, APN and characteristics of each such parcel should be updated based on the most current information reasonably available to the CFD Administrator, and a tax amount determined for each parcel as set forth in Section C, below.

C. MAXIMUM ANNUAL SPECIAL TAX RATES

The Maximum Annual Special Tax for each Assessor's Parcel of Developed Property within Tax Zone No. 1 shall be assigned according to Table 1 below:

**TABLE 1
MAXIMUM ANNUAL SPECIAL TAX RATES
TAX ZONE NO. 1 - FISCAL YEAR 2023/24***

Land Use Category	Maximum Annual Special Tax Rate	Per
Single Family Residential Property	\$242.00	Unit
Multi-Family Residential Property	206.00	Unit
Accessory Dwelling Unit	206.00	Unit
Non-Residential Property	56.00	1,000 Feet of Building Square Footage

**On each July 1, commencing on July 1, 2024, the Maximum Annual Special Tax Rate shall be increased by the Tax Escalation Factor.*

Different Maximum Annual Special Tax rates and tax escalation factors may be identified in Tax Zones added to CFD No. 2023-01 as a result of future annexations.

Mixed-Use Property

In some instances, an Assessor’s Parcel of Developed Property may contain more than one Property Type. The Maximum Annual Special Tax assigned to an Assessor’s Parcel of Mixed-Use Property shall be the sum of the Maximum Annual Special Tax for each Property Types located on that Assessor’s Parcel.

D. METHOD OF APPORTIONMENT OF THE SPECIAL TAXES

All Taxable Property shall be subject to the Special Tax. The Special Tax shall be levied each Fiscal Year by the CFD Administrator.

The Annual Special Tax Requirement shall be apportioned to each Parcel within CFD No. 2023-01 by the method shown below.

First: Determine the Annual Special Tax Requirement.

Second: Levy the Special Tax on each Parcel of Developed Property, Proportionately, up to the applicable Maximum Annual Special Tax.

Under no circumstances will the Special Taxes on any Assessor’s Parcel of Developed Property be increased by more than 10% as a consequence of delinquency or default by the owner of any other Assessor’s Parcel within CFD No. 2023-01.

No tax shall be levied on Undeveloped Property.

E. EXEMPTIONS

Notwithstanding any other provision of this Rate and Method of Apportionment of Special Tax, no Special Tax shall be levied on Property Owner’s Association Property, Assessor’s Parcels with public or utility easements making impractical their utilization for any use other than the purposes set

forth in the easement, or Public Property, except as otherwise provided in Sections 53317.3, 53317.5 and 533401 of the Act.

Welfare Exempt Property shall be exempt from the Special Tax in each Fiscal Year the property qualifies as Welfare Exempt Property.

F. APPEAL OF SPECIAL TAX LEVY

Any property owner may file a written appeal of the Special Tax with the CFD Administrator claiming that the amount or application of the Special Tax is not correct. The appeal must be filed not later than one calendar year after having paid the Special Tax that is disputed, and the appellant must be current in all payments of the Special Tax. In addition, during the term of the appeal process, all Special Tax levied must be paid on or before the payment date established when the levy was made.

The appeal must specify the reasons why the appellant claims the Special Tax is in error. The CFD Administrator shall review the appeal, meet with the appellant if the CFD Administrator deems necessary, and advise the appellant of its determination.

If the property owner disagrees with the CFD Administrator’s decision relative to the appeal, the owner may then file a written appeal with the City Council whose subsequent decision shall be final and binding on all interested parties. If the decision of the CFD Administrator or subsequent decision by the City Council requires the Special Tax to be modified or changed in favor of the property owner, no cash refund shall be made for prior years’ Special Taxes, but an adjustment shall be made to credit the Special Tax in future years.

This procedure shall be exclusive and its exhaustion by any property owner shall be a condition precedent to filing any legal action by such owner.

G. INTERPRETATIONS OF RATE AND METHOD OF APPORTIONMENT

The City reserves the right to make minor administrative and technical changes to this document that do not materially affect the rate and method of apportioning the Special Tax. In addition, the interpretation and application of any section of this document shall be at the City’s discretion. Interpretations may be made by the City Council by ordinance or resolution for purposes of clarifying any vagueness or ambiguity in this Rate and Method of Apportionment of Special Tax.

H. MANNER AND DURATION OF SPECIAL TAX

The Special Tax shall be collected in the same manner and at the same time as ordinary ad valorem property taxes, provided that the City may directly bill the Special Tax, may collect the Special Tax at a different time or in a different manner if needed to meet the financial obligations of CFD No. 2023-01, and may collect delinquent Special Taxes through available methods.

A Special Tax shall be levied commencing in Fiscal Year 2024/25 to the extent necessary to satisfy the Annual Special Tax Requirement and shall be levied each Fiscal Year thereafter for as long as required to satisfy the Annual Special Tax Requirement, but for not longer than 500 years.

I. PREPAYMENT OF SPECIAL TAX

The Special Tax may not be prepaid.

Attachment: Ordinance Levying a Special Tax [Revision 3] (6449 : SECOND READING AND ADOPTION OF ORDINANCE NO. 1004, AN



Report to City Council

TO: Mayor and City Council

FROM: Launa Jimenez, Chief Financial Officer

AGENDA DATE: December 5, 2023

TITLE: ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND AMONG PASSCO PACIFICA LLC, MORENO VALLEY UNIFIED SCHOOL DISTRICT, AND THE CITY OF MORENO VALLEY RELATING TO MORENO VALLEY UNIFIED SCHOOL DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2023-4 (RESO. NO. 2023-XX)

RECOMMENDED ACTION

Recommendation:

1. Adopt Resolution No. 2023-XX, a Resolution Approving the Joint Community Facilities Agreement between Passco Pacifica, LLC, Moreno Valley Unified School District, and City of Moreno Valley, in substantially the form attached hereto with modifications subject to City Attorney approval and authorize the City Manager to execute the Agreement and related documents.

SUMMARY

This report recommends adopting Resolution No. 2023-__, approving a Joint Community Facilities Agreement (“JCFA”) (Attachment 1). The JCFA is for the Moreno Valley Unified School District (“MVUSD”) Community Facilities District (“CFD”) 2023-4 and is between the City, MVUSD and Passco Pacifica, LLC (“Developer”). This action will provide the Developer with a financing option to pay certain City Development Impact Fees (“City Fees”) with bonds issued by MVUSD, acting as the legislative body of CFD 2023-4.

Acting on behalf of the CFD, MVUSD is responsible for formation and annual administration activities related to the District. The City is not a party to or liable for CFD 2023-4 or the debt issued by MVUSD. The City’s role is limited to agreeing to allow the

financing of certain City Fees with bond proceeds and managing the activities related to implementation of the JCFA and compliance with its terms.

DISCUSSION

The Developer plans to construct 55 single-family residential lots as part of Tract 38264. Tract 38264 is located on the southwest corner of Quincy St. and Cottonwood Ave., as identified on the Boundary Map included with this report (Attachment 2). As part of the project's development requirements, the Developer is required to pay certain fees.

At the request of the Developer and pursuant to the Mello-Roos Community Facilities Act of 1982 (the "Act"), MVUSD is forming CFD 2023-4, which includes the parcel included in Tract 38264. Formation of the CFD allows the Developer to finance certain fees with the issuance of tax-exempt bonds. Tax-exempt bonds typically have lower interest rates than the rates associated with conventional financing methods and therefore, are a preferred financing method of the development community.

The Act requires approval of a JCFA if the financed improvements will be owned and operated by an agency (i.e. City) other than the agency forming the CFD. Exhibit C of the JCFA (Attachment 1) identifies the types of City Fees that can be financed through the CFD.

The future bonds will be issued by MVUSD and secured by a special tax, which will be levied on the property tax bill of the properties included within the CFD for the term of the bonds (typically 25-30 years). With the special tax, the property tax rate of properties within the CFD is projected to be 1.95% of the property value at the time the homes are originally sold. The average property tax rate for other new home developments within the City ranges from 1.95%-2.00%.

The City's Special District Financing Policy ("Policy") limits the property tax rate to 1.75% when the City, acting as the legislative body of a district, issues the bonds. However, the Policy is silent on the property tax rate when the City is not the legislative body of a CFD but rather a party to a JCFA.

As the legislative body of the CFD, MVUSD will be responsible for formation of the CFD, bond issuance and compliance, annual administration, levy of the special tax levy on the property tax roll of those parcels in the CFD and responding to customer inquiries. The City will have no responsibility for the CFD other than to ensure City Fees paid with bond proceeds are used in compliance with the JCFA and the Act.

This action meets the Strategic Plan Priorities by providing the financial resources to manage and maximize Moreno Valley's public infrastructure to ensure an excellent quality of life.

ALTERNATIVES

1. Adopt the Resolution and related actions as recommended herein. *Staff recommends this alternative to facilitate development of the property.*
2. Do not adopt the Resolution. *Staff does not recommend this alternative since it will not facilitate development of the property.*

FISCAL IMPACT

There is no fiscal impact to the City. City costs associated with preparation of the staff report and review of the JCFA are being funded by the Developer. The Developer will also pay an administrative fee at the time of payment of the financed City Fees to cover expenses related to administration of and compliance with the terms of the JCFA. The City is not party to nor liable for the formation or administration of the CFD or any bond issuance related to the CFD.

NOTIFICATION

Posting of the agenda

PREPARATION OF STAFF REPORT

Prepared By:
Felicia London
Special Districts Division Manager

Department Head Approval:
Launa Jimenez
Chief Financial Officer/City Treasurer

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

Public Facilities and Capital Projects. Ensure that needed public facilities, roadway improvements, and other infrastructure improvements are constructed and maintained.


Positive Environment. Create a positive environment for the development of Moreno Valley's future.

CITY COUNCIL STRATEGIC PRIORITIES

1. Economic Development
2. Public Safety
3. Library
4. Infrastructure
5. Beautification, Community Engagement, and Quality of Life
6. Youth Programs

See the Discussion section above for details of how this action supports the City Council’s Strategic Priorities.

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

- 1. Resolution
- 2. Boundary Map

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/27/23 4:21 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/27/23 4:22 PM

RESOLUTION NO. 2023-____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY APPROVING A JOINT COMMUNITY FACILITIES AGREEMENT WITH MORENO VALLEY UNIFIED SCHOOL DISTRICT FOR MORENO VALLEY UNIFIED SCHOOL DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2023-4 (PASSCO PACIFICA, LLC)

WHEREAS, the Governing Board of Moreno Valley Unified School District (the "School District") is forming Moreno Valley Unified School District Community Facilities District No. 2023-4 (the "CFD") pursuant to the Mello-Roos Community Facilities Act of 1982, as amended, being Chapter 2.5 of Part 1 of Division 2 of Title 5 of the Government Code of the State of California (the "Act") for the primary purpose of financing school facilities; and

WHEREAS, pursuant to Section 53316.2 of the Act, a community facilities district is authorized to finance facilities to be owned or operated by an entity other than the agency that created the community facilities district pursuant to a joint community facilities agreement; and

WHEREAS, the Governing Board of the School District and PASSCO PACIFICA, LLC, a Delaware limited liability company (the "Property Owner"), the owner of the taxable property within the CFD, are considering the use of the CFD to finance various public facilities that will be constructed by the Property Owner and/or City and owned and operated by the City of Moreno Valley (the "City") and have requested the City to enter into a joint community facilities agreement that would permit the CFD to finance the payment of certain Development Impact Fees, the form of which is on file with the Secretary of this City Council and which is attached hereto as Exhibit A and incorporated herein by this reference (the "Joint Community Facilities Agreement");

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, DOES HEREBY RESOLVE AS FOLLOWS:

1. Recitals. The above recitals are all true and correct and are herein incorporated.
2. Joint Community Facilities Agreement Approved. Pursuant to Section 53316.2 of the Act, this City Council hereby approves the Joint Community Facilities Agreement substantially in the form as Exhibit A and on file with the City Clerk and determines that the Joint Community Facilities Agreement will be beneficial to the residents of the territory included within the jurisdictional boundaries of the CFD. The City Manager or the Mayor and the City Clerk are hereby authorized and directed to execute and deliver the Joint Community Facilities Agreement in said form with such changes, insertions and omissions as may be approved by the

officer or officers executing such agreement, said execution and delivery being conclusive evidence of such approval.

- 3. This Resolution shall be effective immediately upon adoption.

APPROVED AND ADOPTED this 5th day of December 2023.

Mayor of the City of Moreno Valley

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

Resolution No. 2023-2
Date Adopted: December 5, 2023

Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

RESOLUTION JURAT

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

I, Jane Halstead, City Clerk of the City of Moreno Valley, California do hereby certify that Resolution No. 2023-____ was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting held on the 5th day of December 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

CITY CLERK

(SEAL)

Resolution No. 2023-____ 3
Date Adopted: December 5, 2023

Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

EXHIBIT "A"

JOINT COMMUNITY FACILITIES AGREEMENT

relating to

Moreno Valley Unified School District Community Facilities District No. 2023-4

by and among

Moreno Valley Unified School District, City of Moreno Valley and
Passco Pacifica LLC

THIS JOINT COMMUNITY FACILITIES AGREEMENT (the "**Agreement**") is entered into effective as of the ___ day of _____, 20___, by and among MORENO VALLEY UNIFIED SCHOOL DISTRICT, a California school district ("**School District**"), the CITY OF MORENO VALLEY, a California general law city (the "**City**") and PASSCO PACIFICA LLC, a Delaware limited liability company ("**Property Owner**"). This Agreement relates to the formation by the School District of a community facilities district known as "Moreno Valley Unified School District Community Facilities District No. 2023-4" (the "**CFD**"), for the purpose of financing certain fees incurred as a consequence of the development within the CFD to be used by the City to construct facilities to be owned and operated by the City from the proceeds of special taxes of, and bonds issued by, the proposed CFD.

RECITALS:

A. The property is within Tentative Tract No. 38264 and is depicted in Exhibit "A" and described in Exhibit "B" hereto (the "**Property**"), which is located in the City of Moreno Valley, County of Riverside, State of California, and constitutes the land within the boundaries of the CFD.

B. Property Owner owns the Property and intends to develop the Property for residential purposes.

C. Property Owner has made a request to the School District in accordance with the Act (defined below) to form the CFD for the purpose of financing, among other things, certain public facilities to be constructed, owned and operated by the City (the "**City Fee Facilities**"), as described in Exhibit "C" hereto, in lieu of Property Owner's payment of City Fees (defined herein), which City Fee Facilities will benefit the Property.

D. Property Owner has yet to determine whether it will finance any or all of the City Fee Facilities, in lieu of the payment of City Fees, with Bond Proceeds (defined below) that are available for such purpose. The Parties (defined below) hereto acknowledge that the purpose of this Agreement is to satisfy the requirements of the Act.

E. In conjunction with the issuance of building permits for the construction of homes within the Property and/or receipt of final inspections or occupancy certificates for such homes, the Property Owner, or its successors or assigns, may elect to advance City Fee Facilities costs in lieu of payment of City Fees (the "**Advance(s)**") at such times as Bond Proceeds are not available

Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

in sufficient amounts to pay for City Fee Facilities. In such case, the Property Owner shall be entitled to (i) reimbursement of such Advances limited to Bond Proceeds available to the City, if any (the Advances being considered an interest free loan by the Property Owner to City with no repayment obligation except to the extent there are Bond Proceeds received by or made available to the City as described herein, all as further described in Section 5(a) below) and (ii) credit by City for payments made to the City from Bond Proceeds against City Fees which would otherwise be due to the City with respect to the Property for which such transfer was made equal to the amount of Bond Proceeds disbursed to the City or at the direction of the City for City Fee Facilities, all as further described herein.

F. In addition to paying City Fees or Advances, the Property Owner shall pay an administrative fee to City to defray the costs to the City to administer this Agreement and ensure compliance with the terms of this Agreement. The administrative fee shall not be financed by CFD No. 2023-4. The School District has no responsibility or obligation with regard to the City Fees, City Fee Facilities, Advances or the administrative fees paid by Property Owner to the City to defray such costs.

G. In addition to the City Fee Facilities, certain facilities to be owned and operated by the School District (the "School Facilities") and certain facilities to be owned and operated by Eastern Municipal Water District ("EMWD Facilities") are also expected to be funded in whole or in part from Bond Proceeds.

H. The School District has sole discretion and responsibility for the formation and administration of the CFD.

I. The School District is authorized by Section 53313.5 of the Act to assist in the financing of the acquisition and/or construction of the City Fee Facilities. This Agreement constitutes a joint community facilities agreement, within the meaning of Section 53316.2 of the Act, by and among the City, the Property Owner, and the School District, pursuant to which the CFD, when and if formed, will be authorized to finance the acquisition and/or construction of all or a portion of the City Fee Facilities. As authorized by Section 53316.6 of the Act, responsibility for constructing, providing for, and operating the City Fee Facilities is delegated to the City.

J. The Parties hereto find and determine that the residents residing within the boundaries of the City, the School District, and the CFD will be benefited by the construction and/or acquisition of the School Facilities, City Fee Facilities and that this Agreement is beneficial to the interests of such residents.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual promises and covenants set forth herein, the Parties hereto agree as follows:

- 1. Recitals. Each of the above recitals is incorporated herein and is true and correct.
- 2. Definitions. Unless the context clearly otherwise requires, the terms defined in this Section shall, for all purposes of this Agreement, have the meanings herein specified.

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Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

(a) "Act" means the Mello-Roos Community Facilities Act of 1982, Chapter 2.5 (commencing with Section 53311) of Part 1 of Division 2 of Title 5 of the California Government Code.

(b) "Advance" or "Advances" means an amount advanced by Property Owner to the City for City Fee Facilities in lieu of payment of City Fees prior to the availability of sufficient Bond Proceeds. Advances shall be deemed payment of City Fees to the extent sufficient Bond Proceeds are not received or made available to the City.

(c) "Bond Proceeds" or "Proceeds of the Bonds" shall mean those net funds generated by the sale of the Bonds and investment earnings thereon, net of costs of issuance, reserve fund, capitalized interest and administrative expenses.

(d) "Bond Resolution" means that resolution, resolution supplement, fiscal agent agreement, indenture of trust or other equivalent document(s) providing for the issuance of the Bonds.

(e) "Bonds" shall mean those bonds, or other securities, issued by, or on behalf of, the CFD in one or more series, as authorized by the qualified electors within the CFD.

(f) "City Fees" means fees for those capital improvements authorized to be financed with City development impact fees ("DIF"), for police facilities, fire facilities, arterial street and interchange improvements, and community park and recreation center improvements, which are components of the DIF, imposed by the City as a consequence of development of any portion of the Property to finance City Fee Facilities.

(g) "City Fee Facilities" means those City capital improvements eligible to be financed with DIF or any component(s) thereof for police facilities, fire facilities, arterial street and interchange improvements, and community park and recreation center improvements, which are components of the DIF, which are necessary for the provision of services and paid for with Bond Proceeds in lieu of the payment of City Fees imposed by the City as a consequence of development of any portion of the Property, as further described in Exhibit "C" hereto. City Fee Facilities financed with Bond Proceeds pursuant to this Agreement may include City capital improvements from a single DIF category or multiple DIF categories at the discretion of the City.

(h) "Disbursement Request" means a request for payment relating to City Fee Facilities in the form attached hereto as Exhibit "D."

(i) "Other Facilities Account of the Improvement Fund" means the fund, account or sub-account of the CFD (regardless of its designation within the Bond Resolution) into which a portion of the Bond Proceeds may be deposited in accordance with the Bond Resolution to finance City Fee Facilities and which may have subaccounts.

(j) "Party" or "Parties" shall mean any or all of the parties to this Agreement.

(k) "Rate and Method" means the Rate and Method of Apportionment of the Special Tax authorizing the levy and collection of Special Taxes pursuant to proceedings undertaken for the formation of the CFD pursuant to the Act.

(l) "School Facilities" means those public improvements to be owned, operated, or maintained by the School District identified in proceedings to form the CFD that are eligible to be financed with Bond Proceeds.

(m) "Special Taxes" means the special taxes authorized to be levied and collected within the CFD pursuant to the Rate and Method.

(n) "State" means the State of California.

3. Formation of the CFD. The School District is in the process of forming the CFD to finance the City Fee Facilities, and other facilities. The School District has and will retain, at the expense of Property Owner, the necessary consultants to analyze the formation of the CFD.

4. Sale of Bonds and Use of Bond Proceeds. In the event that the CFD is formed and Bonds are issued, the Board of Education of the School District (the "**Board**"), acting as the legislative body of the CFD, may, in its sole discretion, finance City Fee Facilities by issuing one or more series of Bonds. To the extent that the CFD and Property Owner determine that Bond Proceeds are available to finance all or portion of the City Fee Facilities, School District shall notify the City of the amount of such Bond Proceeds deposited in the Other Facilities Account of the Improvement Fund that is available for such purpose. It is currently anticipated that sufficient Bond Proceeds will be available to fund City Fee Facilities in an amount equal to the aggregate total of the applicable City Fees for dwelling units within the CFD. Notwithstanding the foregoing, there is no assurance that City Fees will not increase in the future or available Bond proceeds be less than anticipated such that Bond Proceeds are not sufficient to fund the anticipated amount of City Fee Facilities in an amount equal to the aggregate total of the applicable City Fees. As Bond Proceeds are transferred to the City and reserved to fund City Fee Facilities as described in Section 5 below, the portion of the Property with respect to which such transfer was made shall receive a credit in the amount transferred against the payment of City Fees with respect to the Property. Nothing herein shall supersede the obligation of Property Owner, or its successors, to make Advances or otherwise pay City Fees to the City when due. The purpose of this Agreement is to provide a mechanism by which the CFD may issue the Bonds to provide a source of funds to finance all or a portion of the City Fee Facilities in lieu of the payment of all or a portion of the City Fees. In the event that Bond Proceeds, including investment earnings thereon, are not available or sufficient to fully satisfy the obligation, then Property Owner shall remain obligated to make Advances for which it will receive no reimbursement (except to the extent Bond Proceeds later become available to the City) or pay City Fees to the City as required by the City in accordance with applicable law.

The Bonds shall be issued only if, in its sole discretion, the Board determines that all requirements of State and federal law and all School District policies have been satisfied or have been waived by the School District. Nothing in this Agreement shall confer upon the City or any owner of the Property, including Property Owner, a right to compel the issuance of the Bonds or

the disbursement of Bond Proceeds to fund City Fee Facilities except in accordance with the terms of this Agreement.

5. Disbursements for City Fee Facilities.

(a) Upon the funding of the Other Facilities Account of the Improvement Fund with funds reserved to fund City Fee Facilities, the Property Owner shall notify the City of the amount of Bond Proceeds reserved to fund City Fee Facilities and the Property Owner and the City may execute and submit a Disbursement Request for payment to the School District or the CFD requesting disbursement of an amount equal to all or a portion of the Advances from the Other Facilities Account of the Improvement Fund to the extent that Bond Proceeds are available in the Other Facilities Account of the Improvement Fund for such purpose. Upon the City's receipt of funds pursuant to such Disbursement Request, the Property Owner shall receive reimbursement of the Advances from the City. To facilitate the City's bookkeeping, the City may direct in a Disbursement Request, that all or a portion of a payment be made directly to the Property Owner as reimbursement for Advances made by the Property Owner. In the event of a reimbursement to the Property Owner pursuant to the preceding sentence, the City shall account for an equivalent amount of Advances previously received from the Property Owner in accordance with Section 5(c) below.

To the extent that the City expends all or a portion of an Advance pending the deposit of Bond Proceeds in the Other Facilities Account of the Improvement Fund, for purposes of Treasury Regulations regarding investment and expenditure of Bond Proceeds and State law provisions regarding financing of public capital facilities, the Advance shall be considered an interest free loan by the Property Owner to City, which the City agrees to repay to the extent of the deposit, if any, of Bond Proceeds in the Other Facilities Account of the Improvement Fund and the City's written direction as described below to pay all or a portion of such deposit to the Property Owner as repayment of an Advance.

(b) From time to time following the funding of the Other Facilities Account of the Improvement Fund with funds to fund the City Fee Facilities, Property Owner may notify the City in writing and the City and Property Owner may jointly request a disbursement from the Other Facilities Account of the Improvement Fund to fund City Fee Facilities by executing and submitting a Disbursement Request. Upon receipt of such Disbursement Request completed in accordance with the terms of this Agreement, the CFD shall wire transfer or otherwise pay to the City (or upon the City's written direction pay to the Property Owner or a City contractor) such requested funds to the extent that Bond Proceeds are then available, or subsequently become available, in the Other Facilities Account of the Improvement Fund for such purpose. Upon such notice and the City's receipt of such disbursement (or upon payment to the Property Owner or a City contractor in accordance with directions from the City relating to City Fee Facilities), the Property Owner shall be deemed to have satisfied the applicable City Fees with respect to the number of dwelling units or lots for which City Fees would otherwise have been required in an amount equal to such disbursement.

(c) The City agrees that prior to submitting a Disbursement Request requesting payment from the CFD it shall review and approve all costs included in its request and will have already paid contractually or incurred such costs of City Fee Facilities from its own funds (which

may include Advances from the Property Owner) subsequent to the date of this Agreement, or will disburse such amounts to pay the costs of the City Fee Facilities following receipt of funds from the CFD. For City Fee Facilities to be constructed, in the event that the City does not disburse any Bond Proceeds (or equivalent amount of Advances repaid pursuant to the second to the last sentence of the first paragraph of Section 5(a) above) received by it to third parties within five banking days of receipt, it will trace and report to the CFD all earnings, if any, earned by the City, from the date of receipt of such Bond Proceeds by the City (or the date of disbursement pursuant to the second to the last sentence of the first paragraph of Section 5(a) above) to the date of expenditure by the City for capital costs of the City Fee Facilities. Such report shall be delivered at least annually until all Bond Proceeds are expended by the City.

(d) Subject to Section 5(e) below, the City agrees to maintain adequate internal controls over its payment function and to maintain accounting records in accordance with generally accepted accounting principles. The City will, upon request, provide the School District and/or Property Owner with access to the City's records related to the City Fee Facilities and expenditure of Advances and will provide to the School District its annual financial report certified by an independent certified public accountant for purposes of assisting the School District in calculating the arbitrage rebate obligation of the CFD, if any.

(e) At the City's discretion, the City may elect to satisfy the tracing and accounting of Bond Proceeds requirements set forth in Section 4 of this Agreement by selecting and depositing unexpended Bond Proceeds with a commercial bank, savings bank, savings and loan association or other financial institution which is authorized by law to accept, hold, trace and account for deposits of money (the "**Deposit Institution**"). Property Owner shall pay for all costs and expenses associated with such Deposit Institution and shall pay said costs and expenses as provided in the written direction of the City.

(f) The School District or the CFD agrees to maintain full and accurate records of all amounts, and investment earnings, if any, expended from the Other Facilities Account of the Improvement Fund and expenditure of Advances. The School District or the CFD will, upon request, provide the City and/or Property Owner with access to the School District's or the CFD's records related to the Other Facilities Account of the Improvement Fund.

(g) In connection with the issuance of any Bonds to fund City Fee Facilities, the City agrees to execute and deliver a Certificate Concerning Use of Bond Proceeds ("**City Certificate**"), the form of which is attached hereto as Exhibit "E," in order for bond counsel to conclude that interest will be excluded from gross income under Section 103 of the Internal Revenue Code of 1986, as amended, and any other provision of law. Each such City Certificate shall be provided by bond counsel prior to the pricing of the Bonds, and shall be executed by a duly authorized officer of the City within fifteen (15) calendar days of such receipt of each such City Certificate(s). Should the City fail to execute and deliver the applicable City Certificate within fifteen (15) calendar days, the School District may issue taxable Bonds to fund the City Fee Facilities and tax exempt Bonds to fund School Facilities.

6. Ownership of City Fee Facilities. The City Fee Facilities, once acquired, shall be and remain the property of the City.

7. Indemnification.

(a) *Indemnification by the School District.* The School District shall assume the defense of, indemnify and save harmless, the City and its respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type and description to which they may be subjected or put, by reason of, or resulting from, any act or omission of the School District with respect to this Agreement and the issuance of the Bonds; provided, however, that the School District shall not be required to indemnify any person or entity as to damages resulting from negligence or willful misconduct of such person or entity or their officers, agents, or employees. In addition to the obligations set forth in Section 7(b) below, Property Owner shall indemnify the School District, their respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type as a result of the School District indemnifying City under this Section 7(a).

(b) *Indemnification by Property Owner.* Property Owner shall assume the defense of, indemnify and save harmless, the School District, the CFD, and the City, their respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type and description to which they may be subjected or put, by reason of, or resulting from, any act or omission of Property Owner with respect to this Agreement; provided, however, that Property Owner shall not be required to indemnify any person or entity as to damages resulting from the negligence or willful misconduct of such person or entity or their officers, agents, or employees.

(c) *Indemnification by the City.* The City shall assume the defense of, indemnify and save harmless, the Property Owner, the School District, the CFD and their respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type and description to which they may be subjected or put, by reason of, or resulting from, any act or omission of the City with respect to this Agreement, and the design, engineering, and construction of the City Fee Facilities constructed by the City; provided, however, that the City shall not be required to indemnify any person or entity as to damages resulting from negligence or willful misconduct of such person or entity or their officers, agents, or employees. In addition to the obligations set forth in Section 7(b) above, Property Owner shall indemnify the City, their respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type as a result of the City indemnifying the School District and/or the CFD under this Section 7(c).

8. Allocation of Special Taxes. The Board, as the legislative body of the CFD, shall annually levy the Special Tax as provided for in the formation proceedings of the CFD. The entire amount of any Special Tax levied by the CFD to repay Bonds, or to fund other obligations, shall be allocated to the CFD.

9. Amendment and Assignment. This Agreement may be amended at any time but only in writing signed by each Party hereto. This Agreement may be assigned, in whole or in part,

by Property Owner to the purchaser of any parcel of land within the Property provided, however, such assignment shall not be effective unless and until the City and the School District have been notified, in writing, of such assignment and its written acceptance and the assignment specifies whether the Property Owner or such assignee is authorized to execute disbursement requests and whether the Property Owner or such assignee is to be reimbursed for Advances which have not been reimbursed at the time of such notice.

10. Entire Agreement. This Agreement contains the entire agreement between the Parties with respect to the matters provided for herein and supersedes all prior agreements and negotiations between the Parties with respect to the subject matter of this Agreement.

11. Notices. Any notice, statement, demand, consent, approval, authorization, offer, designation, request or other communication given hereunder to either Party shall be in writing and deemed delivered to the party to whom it is addressed (a) if personally served or delivered, upon delivery, (b) if given by electronic communication, whether by telex, telegram, telecopier, or email upon the sender's receipt of written acknowledgement from the addressee, (c) if given by registered or certified mail, return receipt requested, deposited with the United States mail postage prepaid, 72 hours after such notice is deposited with the United States mail, (d) if given by Federal Express or other overnight courier, with courier charges prepaid, 24 hours after delivery to said overnight courier, or (e) if given by any other means, upon the sender's receipt of written acknowledgement from the addressee, addressed as follows:

- School District: Moreno Valley Unified School District
25634 Alessandro Boulevard
Moreno Valley, CA 92553
Attn: Chief Business Official

- City: City of Moreno Valley
14177 Fredrick Street
PO Box 88005
Moreno Valley, CA 92552
Attn: City Clerk

- Property Owner: Passco Pacifica LLC
c/o Pacifica Investments
333 City Boulevard West, Suite 1700
Orange, CA 92868
Attention: Oscar Graham
Telephone: (714) 609-7257

Each Party may change its address for delivery of notice by delivering written notice of such change of address to the other Parties hereto.

12. Exhibits. All exhibits attached hereto are incorporated into this Agreement by reference.

42677897.1

Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

13. Attorneys' Fees. In the event of the bringing of any action or suit by any Party against any other Party arising out of this Agreement, the Party in whose favor final judgment shall be entered shall be entitled to recover from the losing Party all costs and expenses of suit, including reasonable attorneys' fees.

14. Interpretation in the event of Ambiguities or Disputes. The Parties acknowledge and agree that each has been given the opportunity to review this Agreement with legal counsel independently, and/or has the requisite experience and sophistication to understand, interpret, and agree to the particular language of the provisions hereof. In the event of an ambiguity in or dispute regarding the interpretation of same, the interpretation of this Agreement shall not be resolved by any rule of interpretation providing for interpretation against the Party who causes the uncertainty to exist or against the drafter.

15. Severability. If any part of this Agreement is held to be illegal or unenforceable by a court of competent jurisdiction, the remainder of this Agreement shall be given effect to the fullest extent reasonably possible.

16. Governing Law. This Agreement and any dispute arising hereunder shall be governed by and interpreted in accordance with the laws of the State of California.

17. Waiver. Failure by a Party to insist upon the strict performance of any of the provisions of this Agreement by any other Party hereto, or the failure by a Party to exercise its rights upon the default of any other Party, shall not constitute a waiver of such Party's right to insist and demand strict compliance by such other Party with the terms of this Agreement thereafter.

18. No Third Party Beneficiaries. No person or entity other than the CFD, when and if formed, shall be deemed to be a third party beneficiary hereof, and nothing in this Agreement (either express or implied) is intended to confer upon any person or entity, other than the City, the School District, the CFD, and Property Owner (and their respective successors and assigns, exclusive of individual homebuyers), any rights, remedies, obligations, or liabilities under or by reason of this Agreement.

19. Singular and Plural; Gender. As used herein, the singular of any word includes the plural, and terms in the masculine gender shall include the feminine.

20. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which shall constitute but one instrument.

[Remainder of Page Intentionally Left Blank; Signature Page Follows]

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the day and year written above.

MORENO VALLEY UNIFIED SCHOOL DISTRICT

By: _____
Name: _____
Title: _____

COMMUNITY FACILITIES DISTRICT NO. 2023-4 OF THE MORENO VALLEY UNIFIED SCHOOL DISTRICT

By: _____
Name: _____
Title: _____

ATTEST:

By: _____
Secretary to the Board

APPROVED AS TO FORM:

By: _____

CITY OF MORENO VALLEY

By: _____

ATTEST:

By: _____

APPROVED AS TO FORM:

By: _____

42677897.1

**PASSCO PACIFICA LLC,
a Delaware limited liability company**

By: Passco Companies Development, LLC,
a Delaware limited liability company, its
Manager

By: Passco Companies Development
Manager, Inc., a Delaware
corporation, its Manager

By: _____

Name: _____

Title: _____

42677897.1

EXHIBIT "A"
MORENO VALLEY UNIFIED SCHOOL DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2023-4
BOUNDARY MAP; DEPICTION OF PROPERTY
[ATTACHED]

Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

A-1

42677897.1[CR 42677897.1
8 071

A-12

**PROPOSED BOUNDARY MAP OF
COMMUNITY FACILITIES DISTRICT NO. 2023-4 OF THE
MORENO VALLEY UNIFIED SCHOOL DISTRICT
RIVERSIDE COUNTY
STATE OF CALIFORNIA**

SHEET 1 OF 1

COTTONWOOD AVE

478-250-001

GRAND ST

WALNUT ST

BAY AVE

LEGEND

	Boundaries of Community Facilities District
	Boundaries of Assessor's Parcel
	Assessor's Parcel Number

Prepared by: KeyAnalytics

(1) Filed in the office of the Clerk of the Board of Education of the Moreno Valley Unified School District this ___ day of ___ 20__
_____, Clerk of the Board of Education
Moreno Valley Unified School District

(2) I hereby certify that the within map showing the proposed boundaries of Community Facilities District No. 2023-4 of the Moreno Valley Unified School District, Riverside County, State of California, was approved by the Board of Education of the Moreno Valley Unified School District at the regular meeting thereof, held on this ___ day of ___, 20__ by its Resolution No. _____
_____, Clerk of the Board of Education
Moreno Valley School District

(3) Filed this _____ day of _____, 2023, at the hour of _____ o'clock __M. in Book _____ of Maps Assessments and Community Facilities Districts at Pages _____ and as Instrument No. _____ in the offices of the County Recorder of Riverside County, State of California.

Fee \$ _____

By: _____
County Recorder of Riverside County
Assessor-Clerk-Recorder Peter Aldana

Reference is hereby made to the Assessor maps of the County of Riverside for an exact description of the lines and dimensions of each lot and parcel.

A-2

42677897.1

Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

EXHIBIT "B"

**MORENO VALLEY UNIFIED SCHOOL DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2023-4**

DESCRIPTION OF PROPERTY

Real property in the City of Moreno Valley, County of Riverside, State of California, described as follows:

County of Riverside Assessor Parcel No. 478-250-001

B-1

42677897.1

A-14

Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

EXHIBIT "C"

**MORENO VALLEY UNIFIED SCHOOL DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2023-4**

CITY FACILITIES

City Fee Facilities. The type of City Fee Facilities eligible to be financed by the CFD under the Act are the capital improvements authorized to be financed with City development impact fees ("DIF") including, but not limited to DIF for police facilities, fire facilities, arterial street, park and interchange improvements, and community park and recreation center improvements (which does not include any regional impact fees (i.e. Western Riverside Council of Governments Transportation Uniform Mitigation Fee)) and all appurtenances and appurtenant work in connection with the foregoing, including all costs of site acquisition, planning, design, engineering, legal services, materials testing, coordination, surveying, construction staking, construction management and supervision for such capital improvements, and any other expense incidental to the construction, acquisition, modification, expansion or rehabilitation of such capital improvements, all as permitted under the provisions of the Mello-Roos Community Facilities Act of 1982, as amended. The amount of the City Fee Facilities will be based on the applicable fee schedule, which is subject to change.

C-1

42677897.1

Sequence No. _____
City SA# _____

EXHIBIT "D"

**MORENO VALLEY UNIFIED SCHOOL DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2023-4**

DISBURSEMENT REQUEST FORM

1. Moreno Valley Unified School District Community Facilities District No. 2023-4 (the "CFD") is hereby requested to pay from Bond Proceeds to the City of Moreno Valley (the "City"), as Payee, or to the City's designee, the sum set forth in 3 below.

2. The undersigned certifies that the amount requested for City Fee Facilities is due and payable, has not formed the basis of prior request or payment, and is being made with respect to the Joint Community Facilities Agreement by and among Moreno Valley Unified School District, City of Moreno Valley, and Passco Pacifica LLC, dated as of _____, 20____ (the "JCFA").

3. Amount requested: \$ _____
For Tract / Lot Nos: _____

4. The amount set forth in 3 above is authorized and payable pursuant to the terms of the JCFA. Capitalized terms not defined herein shall have the meaning set forth in the JCFA. The City shall spend the Bond Proceeds allocated hereby in accordance with the requirements set forth in Section 4 of the JCFA.

By entering into the JCFA and requisitioning Bond Proceeds as described herein, the City is not passing upon, determining or assuming the tax-exempt status of the Bonds for federal or California state income tax purposes.

PROPERTY OWNER

**PASSCO PACIFICA LLC,
a Delaware limited liability company**

By: _____
Name: _____
Title: _____

D-1

42677897.1

Attachment: Resolution [Revision 1] (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND

CITY OF MORENO VALLEY

By: [Form, do not sign] _____

Name: _____

Title: _____

ATTEST:

By: [Form, do not sign] _____
Clerk of the City

cc: City Finance Dept.

EXHIBIT "E"

**§
COMMUNITY FACILITIES DISTRICT NO. 2023-4 OF THE
MORENO VALLEY UNIFIED SCHOOL DISTRICT
SERIES _____ SPECIAL TAX BONDS
(Riverside County, California)**

CERTIFICATE CONCERNING USE OF BOND PROCEEDS

I, the undersigned, hereby certify that I am a duly authorized officer of the City of Moreno Valley ("City"), and am authorized to sign this Certificate Concerning Use of Bond Proceeds ("**Certificate**") on behalf of the City in connection with the issuance of the above-captioned Bonds ("**Bonds**"). All capitalized terms used herein and not otherwise defined shall have the meanings given such terms in the Joint Community Facilities Agreement relating to Moreno Valley Unified School District Community Facilities District No. 2023-4 by and among the Moreno Valley Unified School District ("**School District**"), City and Passco Pacifica LLC, dated _____, 20__ ("**JCFA**").

I further certify on behalf of the City that:

1. The City has been informed by the School District and Community Facilities District No. 2023-4 of the Moreno Valley Unified School District (the "**CFD**") that they are in the process of issuing the Bonds on behalf of the CFD and will make available to the City \$ _____ of Bond proceeds (the "**Proceeds**").

2. The City will expend the Proceeds on capital costs (the "**Costs**") paid to third parties for City improvements or equipment (the "**City Facilities**").

3. The City will maintain records regarding the investment and expenditure of the Proceeds and the usage of the City Facilities.

4. The City will cooperate with the CFD regarding compliance with the terms of the Tax Certificate (the "**Tax Certificate**") of the CFD, dated _____, 20__, with respect to the Bonds, including remitting any rebatable arbitrage on the Proceeds, if any, to the CFD to comply with the restrictions of Section 148(f) of the Code.

5. None of the City Facilities financed with proceeds of the Bonds will be used for any activity that constitutes a trade or business that is carried on by persons or entities, other than governmental entities ("**Private Use**") absent consent of the CFD. The leasing of the City Facilities or the access of a person or entity other than a governmental unit to the City Facilities or services provided thereby on a basis other than as a member of the general public ("**General Public Use**") shall constitute a Private Use unless the City obtains an opinion of bond counsel to the contrary. Use of the City Facilities in a trade or business constitutes General Public Use only if the property is intended to be available and is in fact reasonably available for use on the same basis by natural persons not engaged in a trade or business.

6. With respect to management and service contracts, the determination of whether a particular use of the City Facilities constitutes Private Use shall be determined on the basis of applying Revenue Procedure 2017-13. The City represents that, as of the date hereof, no portion of the City Facilities is expected to be subject to contracts or other arrangements with persons or entities engaged in a trade or business (other than governmental units) that involve the management of property or the provision of services that do not comply with the standards of Revenue Procedure 2017-13.

IN WITNESS WHEREOF, the undersigned has executed this certificate as of the date set forth below.

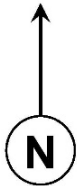
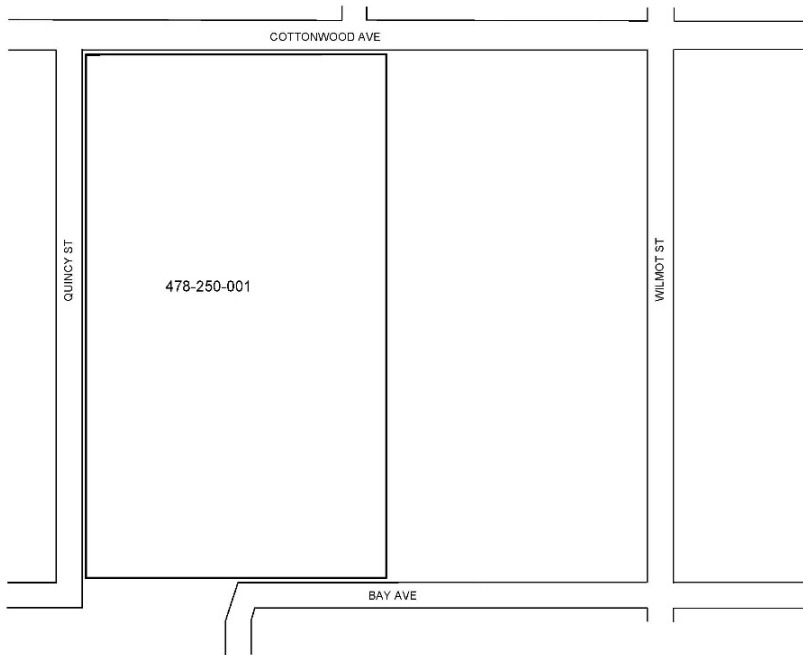
Dated: _____

CITY OF MORENO VALLEY

By: _____
[Authorized Official Title]

SHEET 1 OF 1

PROPOSED BOUNDARY MAP OF
COMMUNITY FACILITIES DISTRICT NO. 2023-4 OF THE
MORENO VALLEY UNIFIED SCHOOL DISTRICT
RIVERSIDE COUNTY
STATE OF CALIFORNIA



LEGEND

	Boundaries of Community Facilities District
	Boundaries of Assessor's Parcel
#####	Assessor's Parcel Number

Prepared by: KeyAnalytics

(1) Filed in the office of the Clerk of the Board of Education of the Moreno Valley Unified School District this ___ day of _____, 20__

_____, Clerk of the Board of Education
Moreno Valley Unified School District

(2) I hereby certify that the within map showing the proposed boundaries of Community Facilities District No. 2023-4 of the Moreno Valley Unified School District, Riverside County, State of California, was approved by the Board of Education of the Moreno Valley Unified School District at the regular meeting thereof, held on this ___ day of _____, 20__ by its Resolution No. _____.

_____, Clerk of the Board of Education
Moreno Valley School District

(3) Filed this _____ day of _____, 2023, at the hour of _____ o'clock __M. in Book _____ of Maps Assessments and Community Facilities Districts at Pages _____ and as Instrument No. _____ In the offices of the County Recorder of Riverside County, State of California.

Fee: \$ _____

By: _____
County Recorder of Riverside County
Assessor-Clerk-Recorder Peter Aldana

Reference is hereby made to the Assessor maps of the County of Riverside for an exact description of the lines and dimensions of each lot and parcel.

Attachment: Boundary Map (6458 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY



Report to City Council

TO: Mayor and City Council

FROM: Launa Jimenez, Chief Financial Officer

AGENDA DATE: December 5, 2023

TITLE: ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES AGREEMENT BY AND AMONG D.R. HORTON LOS ANGELES HOLDING COMPANY, INC., MORENO VALLEY UNIFIED SCHOOL DISTRICT, AND THE CITY OF MORENO VALLEY RELATING TO MORENO VALLEY UNIFIED SCHOOL DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2023-3 (RESO. NO. 2023-XX)

RECOMMENDED ACTION

Recommendation:

1. Adopt Resolution No. 2023-XX, a Resolution Approving the Joint Community Facilities Agreement between D.R. Horton Los Angeles Holding Company, Inc., Moreno Valley Unified School District, and City of Moreno Valley, in substantially the form attached hereto with modifications subject to City Attorney approval, and authorize the City Manager to execute the Agreement and related documents.

SUMMARY

This report recommends adopting Resolution No. 2023-__, approving a Joint Community Facilities Agreement (“JCFA”) (Attachment 1). The JCFA is for the Moreno Valley Unified School District (“MVUSD”) Community Facilities District (“CFD”) 2023-3 and is between the City, MVUSD and D.R. Horton Los Angeles Holding Company, Inc. (“Developer”). This action will provide the Developer with a financing option to pay certain City Development Impact Fees (“City Fees”) with bonds issued by MVUSD, acting as the legislative body of CFD 2023-3.

Acting on behalf of the CFD, MVUSD is responsible for formation and annual administration activities related to the District. The City is not a party to or liable for CFD 2023-3 or the debt issued by MVUSD. The City’s role is limited to agreeing to allow the

financing of certain City Fees with bond proceeds and managing the activities related to implementation of the JCFA and compliance with its terms.

DISCUSSION

The Developer plans to construct 206 single-family residential lots as part of Tract 38236 and 67 single-family residential lots as part of Tract 38237, for a total of 273 single family lots. Tracts 38236 and 38237 are located on the northwest and northeast corners of Oliver St. and Brodiaea Avenue, as identified on the Boundary map included with this report (Attachment 2). As part of the project's development requirements, the Developer is required to pay certain fees.

At the request of the Developer and pursuant to the Mello-Roos Community Facilities Act of 1982 (the "Act"), MVUSD is forming CFD 2023-3, which includes all parcels included in Tracts 38236 and 38237. Formation of the CFD allows the Developer to finance certain fees with the issuance of tax-exempt bonds. Tax-exempt bonds typically have lower interest rates than the rates associated with conventional financing methods and therefore, are a preferred financing method of the development community.

The Act requires approval of a JCFA if the financed improvements will be owned and operated by an agency (i.e. City) other than the agency forming the CFD. Exhibit C of the JCFA (Attachment 1) identifies the types of City Fees that can be financed through the CFD.

The future bonds will be issued by MVUSD and secured by a special tax, which will be levied on the property tax bill of the properties included within the CFD for the term of the bonds (typically 25-30 years). With the special tax, the property tax rate of properties within the CFD is projected to be 2% of the property value at the time the homes are originally sold. The average property tax rate for other new home developments within the City ranges from 1.95%-2.00%.

The City's Special District Financing Policy ("Policy") limits the property tax rate to 1.75% when the City, acting as the legislative body of a district, issues the bonds. However, the Policy is silent on the property tax rate when the City is not the legislative body of a CFD but rather a party to a JCFA.

As the legislative body of the CFD, MVUSD will be responsible for formation of the CFD, bond issuance and compliance, annual administration, levy of the special tax levy on the property tax roll of those parcels in the CFD, and responding to customer inquiries. The City will have no responsibility for the CFD other than to ensure City Fees paid with bond proceeds are used in compliance with the JCFA and the Act.

This action meets the Strategic Plan Priorities by providing the financial resources to manage and maximize Moreno Valley's public infrastructure to ensure an excellent quality of life.

ALTERNATIVES

1. Adopt the Resolution and related actions as recommended herein. *Staff recommends this alternative to facilitate development of the property.*
2. Do not adopt the Resolution. *Staff does not recommend this alternative since it will not facilitate development of the property.*

FISCAL IMPACT

There is no fiscal impact to the City. City costs associated with preparation of the staff report and review of the JCFA are being funded by the Developer. The Developer will also pay an administrative fee at the time of payment of the financed City Fees to cover expenses related to administration of and compliance with the terms of the JCFA. The City is not party to nor liable for the formation or administration of the CFD or any bond issuance related to the CFD.

NOTIFICATION

Posting of the agenda

PREPARATION OF STAFF REPORT

Prepared By:
Felicia London
Special Districts Division Manager

Department Head Approval:
Launa Jimenez
Chief Financial Officer/City Treasurer

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

Public Facilities and Capital Projects. Ensure that needed public facilities, roadway improvements, and other infrastructure improvements are constructed and maintained.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

CITY COUNCIL STRATEGIC PRIORITIES

1. **Economic Development**
2. **Public Safety**
3. **Library**
4. **Infrastructure**
5. **Beautification, Community Engagement, and Quality of Life**
6. **Youth Programs**

See the Discussion section above for details of how this action supports the City Council’s Strategic Priorities.

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

- 1. Resolution Approving JCFA
- 2. Boundary Map

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/27/23 4:04 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/27/23 4:05 PM

RESOLUTION NO. 2023-____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY APPROVING A JOINT COMMUNITY FACILITIES AGREEMENT WITH MORENO VALLEY UNIFIED SCHOOL DISTRICT FOR MORENO VALLEY UNIFIED SCHOOL DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2023-3 (D.R. HORTON LOS ANGELES HOLDING COMPANY, INC.)

WHEREAS, the Governing Board of Moreno Valley Unified School District (the "School District") is forming Moreno Valley Unified School District Community Facilities District No. 2023-3 (the "CFD") pursuant to the Mello-Roos Community Facilities Act of 1982, as amended, being Chapter 2.5 of Part 1 of Division 2 of Title 5 of the Government Code of the State of California (the "Act") for the primary purpose of financing school facilities; and

WHEREAS, pursuant to Section 53316.2 of the Act, a community facilities district is authorized to finance facilities to be owned or operated by an entity other than the agency that created the community facilities district pursuant to a joint community facilities agreement; and

WHEREAS, the Governing Board of the School District and D.R. HORTON LOS ANGELES HOLDING COMPANY, INC., a California corporation (the "Property Owner"), the owner of the taxable property within the CFD, are considering the use of the CFD to finance various public facilities that will be constructed by the Property Owner and/or City and owned and operated by the City of Moreno Valley (the "City") and have requested the City to enter into a joint community facilities agreement that would permit the CFD to finance the payment of certain Development Impact Fees, the form of which is on file with the Secretary of this City Council and which is attached hereto as Exhibit A and incorporated herein by this reference (the "Joint Community Facilities Agreement");

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, DOES HEREBY RESOLVE AS FOLLOWS:

1. Recitals. The above recitals are all true and correct and are herein incorporated.
2. Joint Community Facilities Agreement Approved. Pursuant to Section 53316.2 of the Act, this City Council hereby approves the Joint Community Facilities Agreement substantially in the form as Exhibit A and on file with the City Clerk and determines that the Joint Community Facilities Agreement will be beneficial to the residents of the territory included within the jurisdictional boundaries of the CFD. The City Manager or the Mayor and the City Clerk are hereby authorized and directed to execute and deliver the Joint Community Facilities Agreement in said form with such changes, insertions and omissions as may be approved by the

1

Resolution No. 2023-____
Date Adopted: December 5, 2023

officer or officers executing such agreement, said execution and delivery being conclusive evidence of such approval.

- 3. This Resolution shall be effective immediately upon adoption.

APPROVED AND ADOPTED this 5th day of December 2023.

Mayor of the City of Moreno Valley

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

Resolution No. 2023-2
Date Adopted: December 5, 2023

Attachment: Resolution Approving JCFA [Revision 2] (6345 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES

RESOLUTION JURAT

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

I, Jane Halstead, City Clerk of the City of Moreno Valley, California do hereby certify that Resolution No. 2023-____ was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting held on the 5th day of December 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

CITY CLERK

(SEAL)

Resolution No. 2023-____³
Date Adopted: December 5, 2023

Attachment: Resolution Approving JCFA [Revision 2] (6345 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES

EXHIBIT "A"**JOINT COMMUNITY FACILITIES AGREEMENT**

relating to

Moreno Valley Unified School District Community Facilities District No. 2023-3

by and among

Moreno Valley Unified School District, City of Moreno Valley and
D.R. Horton Los Angeles Holding Company, Inc.

THIS JOINT COMMUNITY FACILITIES AGREEMENT (the "**Agreement**") is entered into effective as of the ___ day of _____, 2023, by and among MORENO VALLEY UNIFIED SCHOOL DISTRICT, a California school district ("**School District**"), the CITY OF MORENO VALLEY, a California general law city (the "**City**") and D.R. HORTON LOS ANGELES HOLDING COMPANY, INC., a California corporation ("**Property Owner**"). This Agreement relates to the formation by the School District of a community facilities district known as "Moreno Valley Unified School District Community Facilities District No. 2023-3" (the "**CFD**"), for the purpose of financing certain fees incurred as a consequence of the development within the CFD to be used by the City to construct facilities to be owned and operated by the City from the proceeds of special taxes of, and bonds issued by, the proposed CFD.

RECITALS:

A. The property is within Tentative Tract Nos. 38236 and 38237 and is depicted in Exhibit "A" and described in Exhibit "B" hereto (the "**Property**"), which is located in the City of Moreno Valley, County of Riverside, State of California, and constitutes the land within the boundaries of the CFD.

B. Property Owner owns the Property and intends to develop the Property for residential purposes.

C. Property Owner has made a request to the School District in accordance with the Act (defined below) to form the CFD for the purpose of financing, among other things, certain public facilities to be constructed, owned and operated by the City (the "**City Fee Facilities**"), as described in Exhibit "C" hereto, in lieu of Property Owner's payment of City Fees (defined herein), which City Fee Facilities will benefit the Property.

D. Property Owner has yet to determine whether it will finance any or all of the City Fee Facilities, in lieu of the payment of City Fees, with Bond Proceeds (defined below) that are available for such purpose. The Parties (defined below) hereto acknowledge that the purpose of this Agreement is to satisfy the requirements of the Act.

E. In conjunction with the issuance of building permits for the construction of homes within the Property and/or receipt of final inspections or occupancy certificates for such homes, the Property Owner, or its successors or assigns, may elect to advance City Fee Facilities costs in lieu of payment of City Fees (the "**Advance(s)**") at such times as Bond Proceeds are not available

in sufficient amounts to pay for City Fee Facilities. In such case, the Property Owner shall be entitled to (i) reimbursement of such Advances limited to Bond Proceeds available to the City, if any (the Advances being considered an interest free loan by the Property Owner to City with no repayment obligation except to the extent there are Bond Proceeds received by or made available to the City as described herein, all as further described in Section 5(a) below) and (ii) credit by City for payments made to the City from Bond Proceeds against City Fees which would otherwise be due to the City with respect to the Property for which such transfer was made equal to the amount of Bond Proceeds disbursed to the City or at the direction of the City for City Fee Facilities, all as further described herein.

F. In addition to paying City Fees or Advances, the Property Owner shall pay an administrative fee to City to defray the costs to the City to administer this Agreement and ensure compliance with the terms of this Agreement. The administrative fee shall not be financed by CFD No. 2023-3. The School District has no responsibility or obligation with regard to the City Fees, City Fee Facilities, Advances or the administrative fees paid by Property Owner to the City to defray such costs.

G. In addition to the City Fee Facilities, certain facilities to be owned and operated by the School District (the "School Facilities") and certain facilities to be owned and operated by Eastern Municipal Water District ("EMWD Facilities") are also expected to be funded in whole or in part from Bond Proceeds.

H. The School District has sole discretion and responsibility for the formation and administration of the CFD.

I. The School District is authorized by Section 53313.5 of the Act to assist in the financing of the acquisition and/or construction of the City Fee Facilities. This Agreement constitutes a joint community facilities agreement, within the meaning of Section 53316.2 of the Act, by and among the City, the Property Owner, and the School District, pursuant to which the CFD, when and if formed, will be authorized to finance the acquisition and/or construction of all or a portion of the City Fee Facilities. As authorized by Section 53316.6 of the Act, responsibility for constructing, providing for, and operating the City Fee Facilities is delegated to the City.

J. The Parties hereto find and determine that the residents residing within the boundaries of the City, the School District, and the CFD will be benefited by the construction and/or acquisition of the School Facilities, City Fee Facilities and that this Agreement is beneficial to the interests of such residents.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual promises and covenants set forth herein, the Parties hereto agree as follows:

1. Recitals. Each of the above recitals is incorporated herein and is true and correct.
2. Definitions. Unless the context clearly otherwise requires, the terms defined in this Section shall, for all purposes of this Agreement, have the meanings herein specified.

(a) "Act" means the Mello-Roos Community Facilities Act of 1982, Chapter 2.5 (commencing with Section 53311) of Part 1 of Division 2 of Title 5 of the California Government Code.

(b) "Advance" or "Advances" means an amount advanced by Property Owner to the City for City Fee Facilities in lieu of payment of City Fees prior to the availability of sufficient Bond Proceeds. Advances shall be deemed payment of City Fees to the extent sufficient Bond Proceeds are not received or made available to the City.

(c) "Bond Proceeds" or "Proceeds of the Bonds" shall mean those net funds generated by the sale of the Bonds and investment earnings thereon, net of costs of issuance, reserve fund, capitalized interest and administrative expenses.

(d) "Bond Resolution" means that resolution, resolution supplement, fiscal agent agreement, indenture of trust or other equivalent document(s) providing for the issuance of the Bonds.

(e) "Bonds" shall mean those bonds, or other securities, issued by, or on behalf of, the CFD in one or more series, as authorized by the qualified electors within the CFD.

(f) "City Fees" means fees for those capital improvements authorized to be financed with City development impact fees ("DIF"), for police facilities, fire facilities, arterial street, interchange, parks and recreation center improvements, which are components of the DIF, imposed by the City as a consequence of development of any portion of the Property to finance City Fee Facilities.

(g) "City Fee Facilities" means those City capital improvements eligible to be financed with DIF or any component(s) thereof for police facilities, fire facilities, arterial street, interchange, parks and recreation center improvements, which are components of the DIF, which are necessary for the provision of services and paid for with Bond Proceeds in lieu of the payment of City Fees imposed by the City as a consequence of development of any portion of the Property, as further described in Exhibit "C" hereto. City Fee Facilities financed with Bond Proceeds pursuant to this Agreement may include City capital improvements from a single DIF category or multiple DIF categories at the discretion of the City.

(h) "Disbursement Request" means a request for payment relating to City Fee Facilities in the form attached hereto as Exhibit "D."

(i) "Other Facilities Account of the Improvement Fund" means the fund, account or sub-account of the CFD (regardless of its designation within the Bond Resolution) into which a portion of the Bond Proceeds may be deposited in accordance with the Bond Resolution to finance City Fee Facilities and which may have subaccounts.

(j) "Party" or "Parties" shall mean any or all of the parties to this Agreement.

(k) "Rate and Method" means the Rate and Method of Apportionment of the Special Tax authorizing the levy and collection of Special Taxes pursuant to proceedings undertaken for the formation of the CFD pursuant to the Act.

(l) "School Facilities" means those public improvements to be owned, operated, or maintained by the School District identified in proceedings to form the CFD that are eligible to be financed with Bond Proceeds.

(m) "Special Taxes" means the special taxes authorized to be levied and collected within the CFD pursuant to the Rate and Method.

(n) "State" means the State of California.

3. Formation of the CFD. The School District is in the process of forming the CFD to finance the City Fee Facilities, and other facilities. The School District has and will retain, at the expense of Property Owner, the necessary consultants to analyze the formation of the CFD.

4. Sale of Bonds and Use of Bond Proceeds. In the event that the CFD is formed and Bonds are issued, the Board of Education of the School District (the "Board"), acting as the legislative body of the CFD, may, in its sole discretion, finance City Fee Facilities by issuing one or more series of Bonds. To the extent that the CFD and Property Owner determine that Bond Proceeds are available to finance all or portion of the City Fee Facilities, School District shall notify the City of the amount of such Bond Proceeds deposited in the Other Facilities Account of the Improvement Fund that is available for such purpose. It is currently anticipated that sufficient Bond Proceeds will be available to fund City Fee Facilities in an amount equal to the aggregate total of the applicable City Fees for dwelling units within the CFD. Notwithstanding the foregoing, there is no assurance that City Fees will not increase in the future or available Bond proceeds be less than anticipated such that Bond Proceeds are not sufficient to fund the anticipated amount of City Fee Facilities in an amount equal to the aggregate total of the applicable City Fees. As Bond Proceeds are transferred to the City and reserved to fund City Fee Facilities as described in Section 5 below, the portion of the Property with respect to which such transfer was made shall receive a credit in the amount transferred against the payment of City Fees with respect to the Property. Nothing herein shall supersede the obligation of Property Owner, or its successors, to make Advances or otherwise pay City Fees to the City when due. The purpose of this Agreement is to provide a mechanism by which the CFD may issue the Bonds to provide a source of funds to finance all or a portion of the City Fee Facilities in lieu of the payment of all or a portion of the City Fees. In the event that Bond Proceeds, including investment earnings thereon, are not available or sufficient to fully satisfy the obligation, then Property Owner shall remain obligated to make Advances for which it will receive no reimbursement (except to the extent Bond Proceeds later become available to the City) or pay City Fees to the City as required by the City in accordance with applicable law.

The Bonds shall be issued only if, in its sole discretion, the Board determines that all requirements of State and federal law and all School District policies have been satisfied or have been waived by the School District. Nothing in this Agreement shall confer upon the City or any owner of the Property, including Property Owner, a right to compel the issuance of the Bonds or

the disbursement of Bond Proceeds to fund City Fee Facilities except in accordance with the terms of this Agreement.

5. Disbursements for City Fee Facilities.

(a) Upon the funding of the Other Facilities Account of the Improvement Fund with funds reserved to fund City Fee Facilities, the Property Owner shall notify the City of the amount of Bond Proceeds reserved to fund City Fee Facilities and the Property Owner and the City may execute and submit a Disbursement Request for payment to the School District or the CFD requesting disbursement of an amount equal to all or a portion of the Advances from the Other Facilities Account of the Improvement Fund to the extent that Bond Proceeds are available in the Other Facilities Account of the Improvement Fund for such purpose. Upon the City's receipt of funds pursuant to such Disbursement Request, the Property Owner shall receive reimbursement of the Advances from the City. To facilitate the City's bookkeeping, the City may direct in a Disbursement Request, that all or a portion of a payment be made directly to the Property Owner as reimbursement for Advances made by the Property Owner. In the event of a reimbursement to the Property Owner pursuant to the preceding sentence, the City shall account for an equivalent amount of Advances previously received from the Property Owner in accordance with Section 5(c) below.

To the extent that the City expends all or a portion of an Advance pending the deposit of Bond Proceeds in the Other Facilities Account of the Improvement Fund, for purposes of Treasury Regulations regarding investment and expenditure of Bond Proceeds and State law provisions regarding financing of public capital facilities, the Advance shall be considered an interest free loan by the Property Owner to City, which the City agrees to repay to the extent of the deposit, if any, of Bond Proceeds in the Other Facilities Account of the Improvement Fund and the City's written direction as described below to pay all or a portion of such deposit to the Property Owner as repayment of an Advance.

(b) From time to time following the funding of the Other Facilities Account of the Improvement Fund with funds to fund the City Fee Facilities, Property Owner may notify the City in writing and the City and Property Owner may jointly request a disbursement from the Other Facilities Account of the Improvement Fund to fund City Fee Facilities by executing and submitting a Disbursement Request. Upon receipt of such Disbursement Request completed in accordance with the terms of this Agreement, the CFD shall wire transfer or otherwise pay to the City (or upon the City's written direction pay to the Property Owner or a City contractor) such requested funds to the extent that Bond Proceeds are then available, or subsequently become available, in the Other Facilities Account of the Improvement Fund for such purpose. Upon such notice and the City's receipt of such disbursement (or upon payment to the Property Owner or a City contractor in accordance with directions from the City relating to City Fee Facilities), the Property Owner shall be deemed to have satisfied the applicable City Fees with respect to the number of dwelling units or lots for which City Fees would otherwise have been required in an amount equal to such disbursement.

(c) The City agrees that prior to submitting a Disbursement Request requesting payment from the CFD it shall review and approve all costs included in its request and will have already paid contractually or incurred such costs of City Fee Facilities from its own funds (which

may include Advances from the Property Owner) subsequent to the date of this Agreement, or will disburse such amounts to pay the costs of the City Fee Facilities following receipt of funds from the CFD. For City Fee Facilities to be constructed, in the event that the City does not disburse any Bond Proceeds (or equivalent amount of Advances repaid pursuant to the second to the last sentence of the first paragraph of Section 5(a) above) received by it to third parties within five banking days of receipt, it will trace and report to the CFD all earnings, if any, earned by the City, from the date of receipt of such Bond Proceeds by the City (or the date of disbursement pursuant to the second to the last sentence of the first paragraph of Section 5(a) above) to the date of expenditure by the City for capital costs of the City Fee Facilities. Such report shall be delivered at least annually until all Bond Proceeds are expended by the City.

(d) Subject to Section 5(e) below, the City agrees to maintain adequate internal controls over its payment function and to maintain accounting records in accordance with generally accepted accounting principles. The City will, upon request, provide the School District and/or Property Owner with access to the City's records related to the City Fee Facilities and expenditure of Advances and will provide to the School District its annual financial report certified by an independent certified public accountant for purposes of assisting the School District in calculating the arbitrage rebate obligation of the CFD, if any.

(e) At the City's discretion, the City may elect to satisfy the tracing and accounting of Bond Proceeds requirements set forth in Section 4 of this Agreement by selecting and depositing unexpended Bond Proceeds with a commercial bank, savings bank, savings and loan association or other financial institution which is authorized by law to accept, hold, trace and account for deposits of money (the "Deposit Institution"). Property Owner shall pay for all costs and expenses associated with such Deposit Institution and shall pay said costs and expenses as provided in the written direction of the City.

(f) The School District or the CFD agrees to maintain full and accurate records of all amounts, and investment earnings, if any, expended from the Other Facilities Account of the Improvement Fund and expenditure of Advances. The School District or the CFD will, upon request, provide the City and/or Property Owner with access to the School District's or the CFD's records related to the Other Facilities Account of the Improvement Fund.

(g) In connection with the issuance of any Bonds to fund City Fee Facilities, the City agrees to execute and deliver a Certificate Concerning Use of Bond Proceeds ("City Certificate"), the form of which is attached hereto as Exhibit "E," in order for bond counsel to conclude that interest will be excluded from gross income under Section 103 of the Internal Revenue Code of 1986, as amended, and any other provision of law. Each such City Certificate shall be provided by bond counsel prior to the pricing of the Bonds and shall be executed by a duly authorized officer of the City within fifteen (15) calendar days of such receipt of each such City Certificate(s). Should the City fail to execute and deliver the applicable City Certificate within fifteen (15) calendar days, the School District may issue taxable Bonds to fund the City Fee Facilities and tax-exempt Bonds to fund School Facilities.

6. Ownership of City Fee Facilities. The City Fee Facilities, once acquired, shall be and remain the property of the City.

7. Indemnification.

(a) *Indemnification by the School District.* The School District shall assume the defense of, indemnify and save harmless, the City and its respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type and description to which they may be subjected or put, by reason of, or resulting from, any act or omission of the School District with respect to this Agreement and the issuance of the Bonds; provided, however, that the School District shall not be required to indemnify any person or entity as to damages resulting from negligence or willful misconduct of such person or entity or their officers, agents, or employees. In addition to the obligations set forth in Section 7(b) below, Property Owner shall indemnify the School District, their respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type as a result of the School District indemnifying City under this Section 7(a).

(b) *Indemnification by Property Owner.* Property Owner shall assume the defense of, indemnify and save harmless, the School District, the CFD, and the City, their respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type and description to which they may be subjected or put, by reason of, or resulting from, any act or omission of Property Owner with respect to this Agreement; provided, however, that Property Owner shall not be required to indemnify any person or entity as to damages resulting from the negligence or willful misconduct of such person or entity or their officers, agents, or employees.

(c) *Indemnification by the City.* The City shall assume the defense of, indemnify and save harmless, the School District, the CFD and their respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type and description to which they may be subjected or put, by reason of, or resulting from, any act or omission of the City with respect to this Agreement, and the design, engineering, and construction of the City Fee Facilities constructed by the City; provided, however, that the City shall not be required to indemnify any person or entity as to damages resulting from negligence or willful misconduct of such person or entity or their officers, agents, or employees. In addition to the obligations set forth in Section 7(b) above, Property Owner shall indemnify the City, their respective officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses, or expenses of every type as a result of the City indemnifying the School District and/or the CFD under this Section 7(c).

8. Allocation of Special Taxes. The Board, as the legislative body of the CFD, shall annually levy the Special Tax as provided for in the formation proceedings of the CFD. The entire amount of any Special Tax levied by the CFD to repay Bonds, or to fund other obligations, shall be allocated to the CFD.

9. Amendment and Assignment. This Agreement may be amended at any time but only in writing signed by each Party hereto. This Agreement may be assigned, in whole or in part,

by Property Owner to the purchaser of any parcel of land within the Property provided, however, such assignment shall not be effective unless and until the City and the School District have been notified, in writing, of such assignment and its written acceptance and the assignment specifies whether the Property Owner or such assignee is authorized to execute disbursement requests and whether the Property Owner or such assignee is to be reimbursed for Advances which have not been reimbursed at the time of such notice.

10. Entire Agreement. This Agreement contains the entire agreement between the Parties with respect to the matters provided for herein and supersedes all prior agreements and negotiations between the Parties with respect to the subject matter of this Agreement.

11. Notices. Any notice, statement, demand, consent, approval, authorization, offer, designation, request or other communication given hereunder to either Party shall be in writing and deemed delivered to the party to whom it is addressed (a) if personally served or delivered, upon delivery, (b) if given by electronic communication, whether by telex, telegram, telecopier, or email upon the sender's receipt of written acknowledgement from the addressee, (c) if given by registered or certified mail, return receipt requested, deposited with the United States mail postage prepaid, 72 hours after such notice is deposited with the United States mail, (d) if given by Federal Express or other overnight courier, with courier charges prepaid, 24 hours after delivery to said overnight courier, or (e) if given by any other means, upon the sender's receipt of written acknowledgement from the addressee, addressed as follows:

- School District: Moreno Valley Unified School District
25634 Alessandro Boulevard
Moreno Valley, CA 92553
Attn: Chief Business Official

- City: City of Moreno Valley
14177 Fredrick Street
PO Box 88005
Moreno Valley, CA 92552
Attn: City Clerk

- Property Owner: D.R. Horton Los Angeles Holding Company, Inc.
2280 Wardlow Circle, Suite 100
Corona, CA 92878
Attention: Vicki Gullion
Telephone: (714) 403-0452

Each Party may change its address for delivery of notice by delivering written notice of such change of address to the other Parties hereto.

12. Exhibits. All exhibits attached hereto are incorporated into this Agreement by reference.

13. Attorneys' Fees. In the event of the bringing of any action or suit by any Party against any other Party arising out of this Agreement, the Party in whose favor final judgment shall

be entered shall be entitled to recover from the losing Party all costs and expenses of suit, including reasonable attorneys' fees.

14. Interpretation in the event of Ambiguities or Disputes. The Parties acknowledge and agree that each has been given the opportunity to review this Agreement with legal counsel independently, and/or has the requisite experience and sophistication to understand, interpret, and agree to the particular language of the provisions hereof. In the event of an ambiguity in or dispute regarding the interpretation of same, the interpretation of this Agreement shall not be resolved by any rule of interpretation providing for interpretation against the Party who causes the uncertainty to exist or against the drafter.

15. Severability. If any part of this Agreement is held to be illegal or unenforceable by a court of competent jurisdiction, the remainder of this Agreement shall be given effect to the fullest extent reasonably possible.

16. Governing Law. This Agreement and any dispute arising hereunder shall be governed by and interpreted in accordance with the laws of the State of California.

17. Waiver. Failure by a Party to insist upon the strict performance of any of the provisions of this Agreement by any other Party hereto, or the failure by a Party to exercise its rights upon the default of any other Party, shall not constitute a waiver of such Party's right to insist and demand strict compliance by such other Party with the terms of this Agreement thereafter.

18. No Third-Party Beneficiaries. No person or entity other than the CFD, when and if formed, shall be deemed to be a third party beneficiary hereof, and nothing in this Agreement (either express or implied) is intended to confer upon any person or entity, other than the City, the School District, the CFD, and Property Owner (and their respective successors and assigns, exclusive of individual homebuyers), any rights, remedies, obligations, or liabilities under or by reason of this Agreement.

19. Singular and Plural; Gender. As used herein, the singular of any word includes the plural, and terms in the masculine gender shall include the feminine.

20. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which shall constitute but one instrument.

[Remainder of Page Intentionally Left Blank; Signature Page Follows]

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the day and year written above.

MORENO VALLEY UNIFIED SCHOOL DISTRICT

By: _____
Name: _____
Title: _____

COMMUNITY FACILITIES DISTRICT NO. 2023-3 OF THE MORENO VALLEY UNIFIED SCHOOL DISTRICT

By: _____
Name: _____
Title: _____

ATTEST:

By: _____
Secretary to the Board

APPROVED AS TO FORM:

By: _____

CITY OF MORENO VALLEY

By: _____

ATTEST:

By: _____

APPROVED AS TO FORM:

By: _____

#212302 v3 9235.5

Attachment: Resolution Approving JCFA [Revision 2] (6345 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES

**D.R. HORTON LOS ANGELES HOLDING
COMPANY, INC.,
a California corporation**

By: _____
Name: _____
Title: _____

Attachment: Resolution Approving JCFA [Revision 2] (6345 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES

EXHIBIT "A"

**MORENO VALLEY UNIFIED SCHOOL DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2023-3**

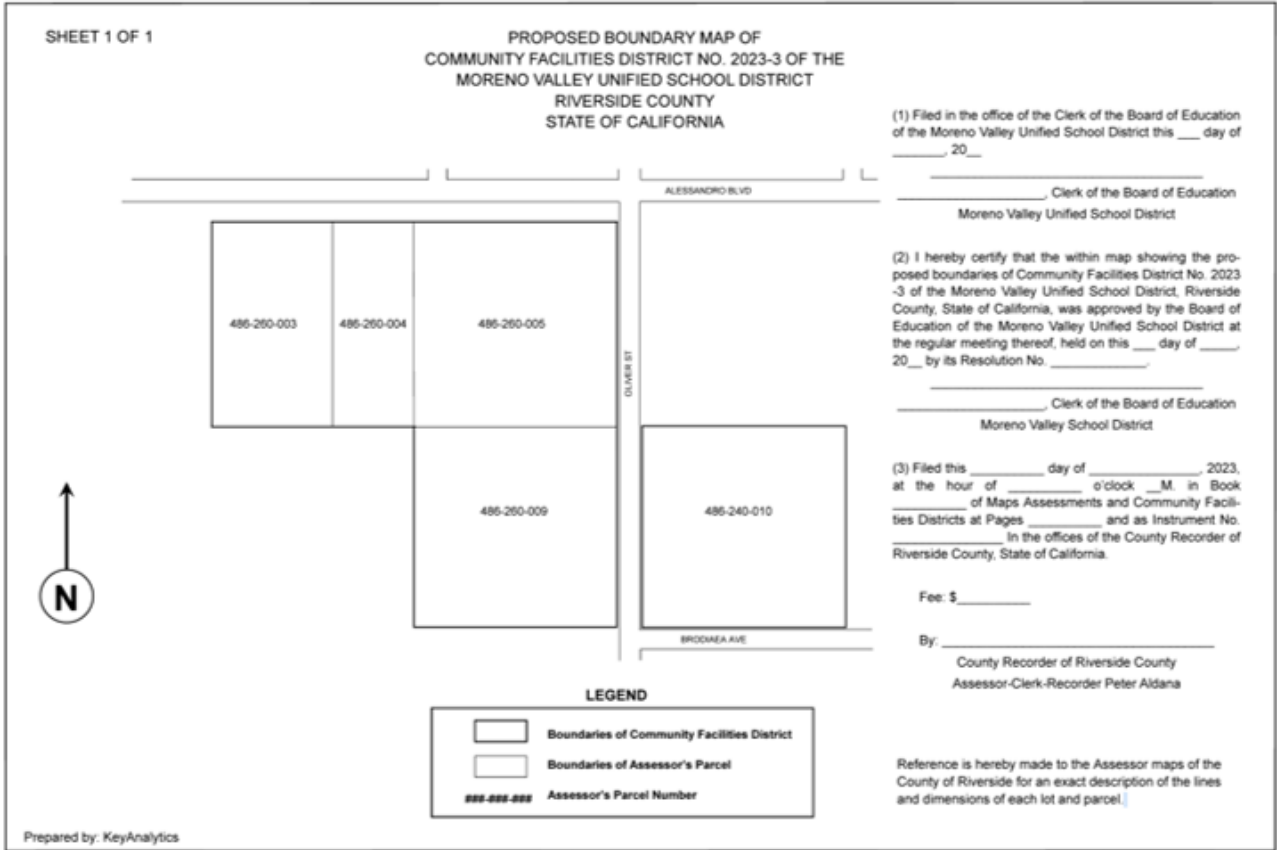
BOUNDARY MAP; DEPICTION OF PROPERTY

[ATTACHED]

Attachment: Resolution Approving JCFA [Revision 2] (6345 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES

A-1

A-12



Attachment: Resolution Approving JCFA [Revision 2] (6345 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES

D-2

EXHIBIT "B"

**MORENO VALLEY UNIFIED SCHOOL DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2023-3**

DESCRIPTION OF PROPERTY

Real property in the City of Moreno Valley, County of Riverside, State of California, described as follows:

County of Riverside Assessor Parcel Nos. 486-260-003, 486-260-004, 486-260-005, 486-260-009, 486-240-010

B-1

A-14

EXHIBIT "C"**MORENO VALLEY UNIFIED SCHOOL DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2023-3****CITY FACILITIES**

City Fee Facilities. The type of City Fee Facilities eligible to be financed by the CFD under the Act are the capital improvements authorized to be financed with City development impact fees ("DIF") including, but not limited to DIF for police facilities, fire facilities, arterial street, interchange, parks and recreation center improvements (which does not include any regional impact fees (i.e. Western Riverside Council of Governments Transportation Uniform Mitigation Fee)) and all appurtenances and appurtenant work in connection with the foregoing, including all costs of site acquisition, planning, design, engineering, legal services, materials testing, coordination, surveying, construction staking, construction management and supervision for such capital improvements, and any other expense incidental to the construction, acquisition, modification, expansion or rehabilitation of such capital improvements, all as permitted under the provisions of the Mello-Roos Community Facilities Act of 1982, as amended. The amount of the City Fee Facilities will be based on the applicable fee schedule, which is subject to change.

C-1

A-15

Sequence No. _____
City SA# _____

EXHIBIT "D"

**MORENO VALLEY UNIFIED SCHOOL DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2023-3**

DISBURSEMENT REQUEST FORM

1. Moreno Valley Unified School District Community Facilities District No. 2023-3 (the "CFD") is hereby requested to pay from Bond Proceeds to the City of Moreno Valley (the "City"), as Payee, or to the City's designee, the sum set forth in 3 below.

2. The undersigned certifies that the amount requested for City Fee Facilities is due and payable, has not formed the basis of prior request or payment, and is being made with respect to the Joint Community Facilities Agreement by and among Moreno Valley Unified School District, City of Moreno Valley, and D.R. Horton Los Angeles Holding Company, Inc., dated as of _____, 2023 (the "JCFA").

3. Amount requested: \$ _____
For Tract / Lot Nos: _____

4. The amount set forth in 3 above is authorized and payable pursuant to the terms of the JCFA. Capitalized terms not defined herein shall have the meaning set forth in the JCFA. The City shall spend the Bond Proceeds allocated hereby in accordance with the requirements set forth in Section 4 of the JCFA.]

By entering into the JCFA and requisitioning Bond Proceeds as described herein, the City is not passing upon, determining or assuming the tax-exempt status of the Bonds for federal or California state income tax purposes.

PROPERTY OWNER

**D.R. HORTON LOS ANGELES HOLDING
COMPANY, INC.,
a California corporation**

By: _____
Name: _____
Title: _____

Attachment: Resolution Approving JCFA [Revision 2] (6345 : ADOPT A RESOLUTION TO APPROVE A JOINT COMMUNITY FACILITIES

CITY OF MORENO VALLEY

By: [Form, do not sign] _____

Name: _____

Title: _____

ATTEST:

By: [Form, do not sign] _____
Clerk of the City

cc: City Finance Dept.

D-2

A-17

EXHIBIT "E"

§
**COMMUNITY FACILITIES DISTRICT NO. 2023-3 OF THE
 MORENO VALLEY UNIFIED SCHOOL DISTRICT
 SERIES _____ SPECIAL TAX BONDS
 (Riverside County, California)**

CERTIFICATE CONCERNING USE OF BOND PROCEEDS

I, the undersigned, hereby certify that I am a duly authorized officer of the City of Moreno Valley ("City") and am authorized to sign this Certificate Concerning Use of Bond Proceeds ("Certificate") on behalf of the City in connection with the issuance of the above-captioned Bonds ("Bonds"). All capitalized terms used herein and not otherwise defined shall have the meanings given such terms in the Joint Community Facilities Agreement relating to Moreno Valley Unified School District Community Facilities District No. 2023-3 by and among the Moreno Valley Unified School District ("School District"), City and D.R. Horton Los Angeles Holding Company, Inc., dated _____, 20__ ("JCFA").

I further certify on behalf of the City that:

1. The City has been informed by the School District and Community Facilities District No. 2023-3 of the Moreno Valley Unified School District (the "CFD") that they are in the process of issuing the Bonds on behalf of the CFD and will make available to the City \$ _____ of Bond proceeds (the "Proceeds").
2. The City will expend the Proceeds on capital costs (the "Costs") paid to third parties for City improvements or equipment (the "City Facilities").
3. The City will maintain records regarding the investment and expenditure of the Proceeds and the usage of the City Facilities.
4. The City will cooperate with the CFD regarding compliance with the terms of the Tax Certificate (the "Tax Certificate") of the CFD, dated _____, 20__, with respect to the Bonds, including remitting any rebatable arbitrage on the Proceeds, if any, to the CFD to comply with the restrictions of Section 148(f) of the Code.
5. None of the City Facilities financed with proceeds of the Bonds will be used for any activity that constitutes a trade or business that is carried on by persons or entities, other than governmental entities ("Private Use") absent consent of the CFD. The leasing of the City Facilities or the access of a person or entity other than a governmental unit to the City Facilities or services provided thereby on a basis other than as a member of the general public ("General Public Use") shall constitute a Private Use unless the City obtains an opinion of bond counsel to the contrary. Use of the City Facilities in a trade or business constitutes General Public Use only if the property is intended to be available and is in fact reasonably available for use on the same basis by natural persons not engaged in a trade or business.

E-1

6. With respect to management and service contracts, the determination of whether a particular use of the City Facilities constitutes Private Use shall be determined on the basis of applying Revenue Procedure 2017-13. The City represents that, as of the date hereof, no portion of the City Facilities is expected to be subject to contracts or other arrangements with persons or entities engaged in a trade or business (other than governmental units) that involve the management of property or the provision of services that do not comply with the standards of Revenue Procedure 2017-13.

IN WITNESS WHEREOF, the undersigned has executed this certificate as of the date set forth below.

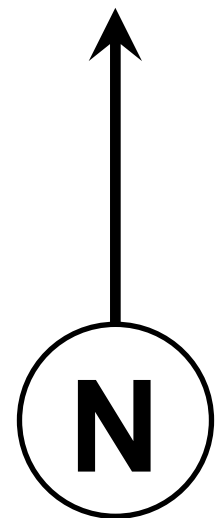
Dated: _____

CITY OF MORENO VALLEY


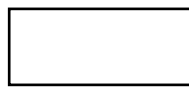
By: _____
[Authorized Official Title]

SHEET 1 OF 1

PROPOSED BOUNDARY MAP OF
COMMUNITY FACILITIES DISTRICT NO. 2023-3 OF THE
MORENO VALLEY UNIFIED SCHOOL DISTRICT
RIVERSIDE COUNTY
STATE OF CALIFORNIA



LEGEND

	Boundaries of Community Facilities District
	Boundaries of Assessor's Parcel
###-###-###	Assessor's Parcel Number

(1) Filed in the office of the Clerk of the Board of Education of the Moreno Valley Unified School District this ___ day of _____, 20__

_____, Clerk of the Board of Education
Moreno Valley Unified School District

(2) I hereby certify that the within map showing the proposed boundaries of Community Facilities District No. 2023-3 of the Moreno Valley Unified School District, Riverside County, State of California, was approved by the Board of Education of the Moreno Valley Unified School District at the regular meeting thereof, held on this ___ day of _____, 20__ by its Resolution No. _____.

_____, Clerk of the Board of Education
Moreno Valley School District

(3) Filed this _____ day of _____, 2023, at the hour of _____ o'clock __M. in Book _____ of Maps Assessments and Community Facilities Districts at Pages _____ and as Instrument No. _____ In the offices of the County Recorder of Riverside County, State of California.

Fee: \$ _____

By: _____
County Recorder of Riverside County
Assessor-Clerk-Recorder Peter Aldana

Reference is hereby made to the Assessor maps of the County of Riverside for an exact description of the lines and dimensions of each lot and parcel.



Report to City Council

TO: Mayor and City Council Acting in its Capacity as President and Members of the Board of Directors of the Moreno Valley Community Services District (CSD)

FROM: Launa Jimenez, Chief Financial Officer

AGENDA DATE: December 5, 2023

TITLE: PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN PARCELS INTO COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) - AMENDMENT NOS. 126, 129 AND 131 (RESO. NOS. CSD 2023-__, CSD 2023-__, AND CSD 2023-__)

RECOMMENDED ACTION

Recommendation:

1. Adopt Resolution No. CSD 2023-__, a Resolution of the Board for the Moreno Valley Community Services District of the City of Moreno Valley, California, ordering the annexation of territory to City of Moreno Valley Community Facilities District No. 2021-01 (Parks Maintenance) and approving the amended map for said District (Amendment No. 126) (Ruben V. Marquez, located at 14191 Travers Dr.).
2. Adopt Resolution No. CSD 2023-__), a Resolution of the Board for the Moreno Valley Community Services District of the City of Moreno Valley, California, ordering the annexation of territory to City of Moreno Valley Community Facilities District No. 2021-01 (Parks Maintenance) and approving the amended map for said District (Amendment No. 129) (Leticia Llamas, Sergio Llamas and Martin Castro Cazarez, located at 14755 Silvertree Rd.).
3. Adopt Resolution No. CSD 2023-__, a Resolution of the Board for the Moreno Valley Community Services District of the City of Moreno Valley, California, ordering the annexation of territory to City of Moreno Valley Community Facilities District No. 2021-01 (Parks Maintenance) and approving the amended map for said District (Amendment No. 131) (24291 Bairndale Drive Land Trust and Brock Christopher Bagley, located at 24291 and 24295 Bairndale Dr.).

SUMMARY

Adoption of the resolutions (Attachments 1-3) will certify the annexation of 3 parcels into Community Facilities District (CFD) No. 2021-01 (Parks Maintenance) ("District"). This action impacts only the property owners identified below, not the general citizens or taxpayers of the City.

DISCUSSION

As a condition of approval for the development projects identified below, the applicants are required to provide an ongoing funding source for maintenance of certain public facilities (e.g., parks). The funding is used to mitigate the cost of the impacts created by the proposed development.

Property Owner Project ACP Record #s	Amendment No.	APN(s)	Location
Ruben V. Marquez Accessory Dwelling Unit (ADU) BFR23-0047/SCP23-0057	126	482-491-005	14191 Travers Dr.
Leticia Llamas, Sergio Llamas and Martin Castro Cazarez Jr. Accessory Dwelling Unit (ADU) BFR23-0134/SCP23-0059	129	482-421-009	14775 Silvertree Rd.
24291 Bairndale Drive Land Trust and Brock Christopher Bagley Accessory Dwelling Unit (ADU) & Jr. ADU BFR23-0079/BFR23-0102/SCP23-0043	131	482-536-010	24291 and 24295 Bairndale Dr.

On June 1, 2021, the CSD Board formed CFD No. 2021-01, pursuant to the Mello-Roos Community Facilities Act of 1982. The District was created to provide the development community with an alternative funding tool to mitigate the impacts of their proposed development. If a property owner elects to annex the parcels of their development into the District, they also authorize the CSD to annually levy a special tax, collected on the annual property tax bill, against property in the development project. Thus, satisfying the condition of approval.

On December 21, 2021, the CSD Board adopted Ordinance No. 56, which designated the entire territory of the City as a future annexation area for the District. With the future annexation area designated, annexations can occur without an additional public hearing as long as the annexing landowner provides unanimous consent. Once annexed, parcels are subject to the annual special tax to fund the service they are receiving.

An applicant has two options to satisfy the condition(s) of approval:

1. The property owner submits a Landowner Petition unanimously approving annexation of the property into the District. Approval of the petition and

special tax rate allows the City to annually levy the special tax on the property tax bill of the property. This option is only available if there are fewer than 12 registered voters living within the proposed annexation area; or

2. The applicant funds an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation and provides for the ongoing operation and maintenance of parks facilities.

The Property Owners listed above elected to annex their property into CFD No. 2021-01 and have the special tax applied to the annual property tax bill. The Office of the Riverside County Registrar of Voters confirmed the number of registered voters residing at each property, allowing a special election of the landowner. Adoption of the resolutions (Attachments 1-3) amends the District and adds the property to the tax rate area identified in the Fiscal Impact section of this report. The resolutions also direct the recordation of the boundary maps (Attachments 4-6) and amended notice of special tax liens for the amendments. The Election Official confirmed the Property Owners unanimously approved the annexation of their property into the District (Attachments 7-9).

ALTERNATIVES

1. Adopt the resolutions. *Staff recommends this alternative since it will annex the properties into CFD No. 2021-01 at the request of the Property Owners and satisfy the condition of approval for the proposed developments.*
2. Do not adopt the resolutions. *Staff does not recommend this alternative because it is contrary to the request of the Property Owners, will not satisfy the condition of approval, and may delay development of the projects.*
3. Do not adopt the resolutions but rather continue the item to a future regularly scheduled City Council meeting. *Staff does not recommend this alternative as it will delay the Property Owners from satisfying the condition of approval and may delay development of the projects.*

FISCAL IMPACT

Revenue received from the special tax is restricted and can only be used to fund the services for each tax rate area within the District. The special tax can only be applied to a property tax bill of a parcel wherein the qualified electors (i.e., landowners or registered voters, depending upon the number of registered voters) have previously provided approval. If the projected revenue from the maximum special tax exceeds what is necessary to fund the services within the tax rate area, a lower amount will be applied to the property tax bill for all of the properties within the affected tax rate area. The

maximum special tax rates are detailed below.

Property Owner Project ACP Record #s	Amendment No.	Property Type	FY 2023/24 Maximum Special Tax Rate
Ruben V. Marquez Accessory Dwelling Unit (ADU) BFR23-0047/SCP23-0057	126	Single Family	\$335.22/unit
Leticia Llamas, Sergio Llamas and Martin Castro Cazarez Jr. Accessory Dwelling Unit (ADU) BFR23-0134/SCP23-0059	129	Single Family	\$335.22/unit
24291 Bairmdale Drive Land Trust and Brock Christopher Bagley Accessory Dwelling Unit (ADU) & Jr. ADU BFR23-0079/BFR23-0102/SCP23-0043	131	Single Family	\$335.22/unit

The maximum special tax rate is subject to an annual inflation adjustment based on the change in the Consumer Price Index (CPI) or five percent (5%), whichever is greater. However, the annual adjustment cannot be applied unless the CSD Board annually authorizes such adjustment. The increase to the maximum special tax rate cannot exceed the annual inflationary adjustment without a two-thirds approval of the qualified electors within the affected tax rate area.

NOTIFICATION

Subject Landowner Petitions were emailed to Property Owners between October 27, 2023 through November 7, 2023.

PREPARATION OF STAFF REPORT

Prepared by:
Isa Rojas
Management Analyst

Department Head Approval:
Launa Jimenez
Chief Financial Officer/City Treasurer

Concurred by:
Felicia London
Special Districts Division Manager

Concurred by:
Jeremy Bubnick
Parks & Community Services Director

CITY COUNCIL GOALS

Revenue Diversification and Preservation. Develop a variety of City revenue sources and policies to create a stable revenue base and fiscal policies to support essential City services, regardless of economic climate.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

- 1. Economic Development
- 2. Public Safety
- 3. Library
- 4. Infrastructure
- 5. Beautification, Community Engagement, and Quality of Life
- 6. Youth Programs

Objective 4.2: Develop and maintain a comprehensive Infrastructure Plan to invest in and deliver City infrastructure.

Objective 5.2: Promote the installation and maintenance of cost effective, low maintenance landscape, hardscape and other improvements which create a clean, inviting community.

ATTACHMENTS

To view large attachments, please click your “bookmarks”



on the left hand side of this document for the necessary attachment.

- 1. Resolution Ordering Annexation - Amendment No. 126
- 2. Resolution Ordering Annexation - Amendment No. 129
- 3. Resolution Ordering Annexation - Amendment No. 131
- 4. Boundary Map - Amendment No. 126
- 5. Boundary Map - Amendment No. 129
- 6. Boundary Map - Amendment No. 131
- 7. Certificate of Election Official - Amendment No. 126
- 8. Certificate of Election Official - Amendment No. 129
- 9. Certificate of Election Official - Amendment No. 131

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/27/23 4:26 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/28/23 8:42 AM

RESOLUTION NO. 2023-___

A RESOLUTION OF THE BOARD FOR THE MORENO VALLEY COMMUNITY SERVICES DISTRICT OF THE CITY OF MORENO VALLEY, CALIFORNIA, ORDERING THE ANNEXATION OF TERRITORY TO MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) AND APPROVING AN AMENDED MAP FOR SAID DISTRICT

WHEREAS, by its Resolution No. CSD 2021-22, Board established the Moreno Valley Community Services District Community Facilities District No. 2021-01 (Parks Maintenance) (the "CFD"), pursuant to the Mello-Roos Community Facilities Act of 1982 (Government Code Section 53311 *et seq.*) (the "Act"); and

WHEREAS, by its Ordinance No. CSD 55, the Board authorized an annual special tax to be levied against all non-exempt parcels of real property within the CFD (the "Special Tax") to fund parks maintenance services; and

WHEREAS, in order to permit landowners to efficiently annex developing parcels to the CFD, the Board, by its Ordinance No. CSD 56 designated the entire territory of the City of Moreno Valley as a future annexation area for the CFD; and

WHEREAS, the landowner of the parcel listed on Exhibit A to this Resolution, which is attached hereto and incorporated herein by reference, has submitted to the District a petition requesting and approving annexation of the listed parcel (the "Annexation Parcel") to the CFD; and

WHEREAS, the Annexation Parcel is comprised of the territory shown on the boundary map (the "Boundary Map") entitled "Amendment No. 126 to Boundaries of Community Facilities District No. 2021-01 (Parks Maintenance), Moreno Valley Community Services District, City of Moreno Valley, County of Riverside, California" which is included as Exhibit B to this Resolution, and incorporated herein by this reference; and

WHEREAS, the Board desires to annex the Annexation Parcel to the CFD.

NOW, THEREFORE, THE BOARD FOR THE MORENO VALLEY COMMUNITY SERVICES DISTRICT OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

1. Recitals. The above recitals are all true and correct and are herein incorporated.
2. Annexation Approved. The Annexation Parcel is hereby added to and part of the CFD with full legal effect and is subject to the Special Tax.
3. Description of Services. The following is a general description of the services (the "Services") provided in the CFD:

1
Resolution No. 2023-___
Date Adopted: December 5, 2023

Attachment: Resolution Ordering Annexation - Amendment No. 126 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

Maintaining, lighting, and operating parks and park improvements that are owned and operated by the CSD, to the extent such services are in addition to services already provided at the time CFD No. 2021-01 was created and do not supplant existing services.

Fundable services include (i) planting, replanting, mowing, trimming, irrigation and fertilization of grass, trees, shrubs, and other plants and vegetation, (ii) the operation, maintenance, repair, and replacement of irrigation systems and lighting systems, and (iii) the operation maintenance, repair and replacement of any real property or improvements with a useful life of more than five years.

Fundable costs include, but are not limited to: (i) contracted costs for such services, (ii) salaries and benefits of staff, including park rangers, devoted to such services, (iii) expenses related to equipment, apparatus, and supplies related to these services, (iv) administrative and overhead costs, including staff time, associated with providing such services, and (v) lifecycle costs associated with the repair and replacement of facilities and improvements.

4. Amended Boundary Map. The Boundary Map attached hereto as Exhibit B is hereby approved. This map amends, and does not supersede, the existing maps of the CFD. The Board directs that said map be filed with the Riverside County Recorder pursuant to Section 3113 of the Streets and Highways Code.

5. Notice of Special Tax Lien. The Board directs that an amended notice of special tax lien be recorded pursuant to Section 3117.5 of the Streets and Highways Code with respect to the Annexation Parcel associated with the Boundary Map.

6. This Resolution shall be effective immediately upon adoption.

7. The Secretary shall certify to the adoption of this Resolution, and shall maintain it on file as a public record this Resolution.

8. Severability. The Board declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

2
Resolution No. CSD 2023-____
Date Adopted: December 5, 2023

APPROVED AND ADOPTED this 5th day of December 2023.

Mayor of the City of Moreno Valley,
acting in the capacity as President of the
Board for the Moreno Valley Community
Services District

ATTEST:

City Clerk of the City of Moreno Valley,
acting in the capacity of Secretary of
the Moreno Valley Community
Services District

APPROVED AS TO FORM:

City Attorney of the City of Moreno Valley,
acting in the capacity of General Counsel
of the Moreno Valley Community Services District

Resolution No. CSD 2023-3
Date Adopted: December 5, 2023

Attachment: Resolution Ordering Annexation - Amendment No. 126 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

RESOLUTION JURAT

I, Jane Halstead, Secretary of the Moreno Valley Community Services District, Moreno Valley, California do hereby certify that Resolution No. CSD 2023-____ was duly and regularly adopted by the Board of Directors for the Moreno Valley Community Services District at a regular meeting held on the 5th day of December 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Boardmembers, Vice-President and President)

SECRETARY

(SEAL)

4
Resolution No. CSD 2023-____
Date Adopted: December 5, 2023

Attachment: Resolution Ordering Annexation - Amendment No. 126 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

EXHIBIT A

List of Annexation Parcel(s)

Amendment Map No.	Assessor's Parcel Number
126	482-491-005

Attachment: Resolution Ordering Annexation - Amendment No. 126 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

Resolution No. CSD 2023-5
Date Adopted: December 5, 2023

EXHIBIT B

Boundary Map Amendment

**AMENDMENT NO. 126 TO BOUNDARIES OF MORENO VALLEY COMMUNITY SERVICES DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2021-01
(PARKS MAINTENANCE)**

SHEET 1 OF 1

**MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY OF MORENO VALLEY
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA**

(THIS MAP AMENDS, BY ADDING THE ADDITIONAL TERRITORY SHOWN HEREON, THE BOUNDARY MAP FOR MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE), CITY OF MORENO VALLEY, RIVERSIDE COUNTY, STATE OF CALIFORNIA, PRIOR RECORDED AT BOOK 86 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AT PAGE 98, IN THE OFFICE OF THE COUNTY RECORDER FOR THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.)

FILED IN THE OFFICE OF THE CITY CLERK OF THE CITY OF MORENO VALLEY THIS ____ DAY OF _____, 20__.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETARY OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT

I HEREBY CERTIFY THAT THE WITHIN MAP SHOWING AMENDED BOUNDARIES OF COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE), OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, WAS APPROVED BY THE BOARD OF DIRECTORS OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT AT A REGULAR MEETING THEREOF, HELD ON THE ____ DAY OF _____, 20__, BY ITS RESOLUTION NO. _____.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETARY OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT

FILED THIS ____ DAY OF _____, 20__, AT THE HOUR OF ____ O'CLOCK ____ M. (IN THE BOOK _____ PAGE(S) _____) OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. _____ IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

COUNTY RECORDER
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

REFERENCE IS MADE TO THAT BOUNDARY MAP OF THE COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA (TERRITORY PROPOSED FOR ANNEXATION IN THE FUTURE, WITH THE CONDITION THAT PARCELS WITHIN THAT TERRITORY MAY BE ANNEXED ONLY WITH THE UNANIMOUS APPROVAL OF THE OWNER OR OWNERS OF EACH PARCEL, OR PARCELS AT THE TIME THAT PARCEL OR THOSE PARCELS ARE ANNEXED) RECORDED WITH THE RIVERSIDE COUNTY RECORDER'S OFFICE ON OCTOBER 27, 2021 IN BOOK 87, PAGE 81 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. 2021-068742 WHICH DESIGNATED THE TERRITORY SHOWN HEREIN AS TERRITORY FOR FUTURE ANNEXATION TO THE COMMUNITY FACILITIES DISTRICT REFERENCED THEREON.

FOR PARTICULARS OF THE LINES AND DIMENSIONS OF ASSESSOR PARCELS, REFERENCE IS MADE TO THE MAPS OF THE ASSESSOR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA. THE RIVERSIDE COUNTY ASSESSOR'S MAPS SHALL GOVERN FOR ALL DETAILS CONCERNING THE LINES AND DIMENSIONS OF SUCH LOTS OR PARCELS.

VICINITY MAP

Legend

- Annexation Parcel
- Surrounding Area Parcels

1 inch = 125 feet

27060 Via Industrial, Suite 200
Temecula, CA 92590
(951) 987-9500

Attachment: Resolution Ordering Annexation - Amendment No. 126 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

RESOLUTION NO. 2023-___

A RESOLUTION OF THE BOARD FOR THE MORENO VALLEY COMMUNITY SERVICES DISTRICT OF THE CITY OF MORENO VALLEY, CALIFORNIA, ORDERING THE ANNEXATION OF TERRITORY TO MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) AND APPROVING AN AMENDED MAP FOR SAID DISTRICT

WHEREAS, by its Resolution No. CSD 2021-22, Board established the Moreno Valley Community Services District Community Facilities District No. 2021-01 (Parks Maintenance) (the "CFD"), pursuant to the Mello-Roos Community Facilities Act of 1982 (Government Code Section 53311 *et seq.*) (the "Act"); and

WHEREAS, by its Ordinance No. CSD 55, the Board authorized an annual special tax to be levied against all non-exempt parcels of real property within the CFD (the "Special Tax") to fund parks maintenance services; and

WHEREAS, in order to permit landowners to efficiently annex developing parcels to the CFD, the Board, by its Ordinance No. CSD 56 designated the entire territory of the City of Moreno Valley as a future annexation area for the CFD; and

WHEREAS, the landowner of the parcel listed on Exhibit A to this Resolution, which is attached hereto and incorporated herein by reference, has submitted to the District a petition requesting and approving annexation of the listed parcel (the "Annexation Parcel") to the CFD; and

WHEREAS, the Annexation Parcel is comprised of the territory shown on the boundary map (the "Boundary Map") entitled "Amendment No. 129 to Boundaries of Community Facilities District No. 2021-01 (Parks Maintenance), Moreno Valley Community Services District, City of Moreno Valley, County of Riverside, California" which is included as Exhibit B to this Resolution, and incorporated herein by this reference; and

WHEREAS, the Board desires to annex the Annexation Parcel to the CFD.

NOW, THEREFORE, THE BOARD FOR THE MORENO VALLEY COMMUNITY SERVICES DISTRICT OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

1. Recitals. The above recitals are all true and correct and are herein incorporated.
2. Annexation Approved. The Annexation Parcel is hereby added to and part of the CFD with full legal effect and is subject to the Special Tax.
3. Description of Services. The following is a general description of the services (the "Services") provided in the CFD:

1
Resolution No. 2023-___
Date Adopted: December 5, 2023

Attachment: Resolution Ordering Annexation - Amendment No. 129 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

Maintaining, lighting, and operating parks and park improvements that are owned and operated by the CSD, to the extent such services are in addition to services already provided at the time CFD No. 2021-01 was created and do not supplant existing services.

Fundable services include (i) planting, replanting, mowing, trimming, irrigation and fertilization of grass, trees, shrubs, and other plants and vegetation, (ii) the operation, maintenance, repair, and replacement of irrigation systems and lighting systems, and (iii) the operation maintenance, repair and replacement of any real property or improvements with a useful life of more than five years.

Fundable costs include, but are not limited to: (i) contracted costs for such services, (ii) salaries and benefits of staff, including park rangers, devoted to such services, (iii) expenses related to equipment, apparatus, and supplies related to these services, (iv) administrative and overhead costs, including staff time, associated with providing such services, and (v) lifecycle costs associated with the repair and replacement of facilities and improvements.

4. Amended Boundary Map. The Boundary Map attached hereto as Exhibit B is hereby approved. This map amends, and does not supersede, the existing maps of the CFD. The Board directs that said map be filed with the Riverside County Recorder pursuant to Section 3113 of the Streets and Highways Code.

5. Notice of Special Tax Lien. The Board directs that an amended notice of special tax lien be recorded pursuant to Section 3117.5 of the Streets and Highways Code with respect to the Annexation Parcel associated with the Boundary Map.

6. This Resolution shall be effective immediately upon adoption.

7. The Secretary shall certify to the adoption of this Resolution, and shall maintain it on file as a public record this Resolution.

8. Severability. The Board declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

APPROVED AND ADOPTED this 5th day of December 2023.

Mayor of the City of Moreno Valley,
acting in the capacity as President of the
Board for the Moreno Valley Community
Services District

ATTEST:

City Clerk of the City of Moreno Valley,
acting in the capacity of Secretary of
the Moreno Valley Community
Services District

APPROVED AS TO FORM:

City Attorney of the City of Moreno Valley,
acting in the capacity of General Counsel
of the Moreno Valley Community Services District

Resolution No. CSD 2023-3
Date Adopted: December 5, 2023

Attachment: Resolution Ordering Annexation - Amendment No. 129 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

RESOLUTION JURAT

I, Jane Halstead, Secretary of the Moreno Valley Community Services District, Moreno Valley, California do hereby certify that Resolution No. CSD 2023-____ was duly and regularly adopted by the Board of Directors for the Moreno Valley Community Services District at a regular meeting held on the 5th day of December 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Boardmembers, Vice-President and President)

SECRETARY

(SEAL)

4
Resolution No. CSD 2023-____
Date Adopted: December 5, 2023

Attachment: Resolution Ordering Annexation - Amendment No. 129 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

EXHIBIT A

List of Annexation Parcel(s)

Amendment Map No.	Assessor's Parcel Number
129	482-421-009

Attachment: Resolution Ordering Annexation - Amendment No. 129 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

Resolution No. CSD 2023-5
Date Adopted: December 5, 2023

EXHIBIT B

Boundary Map Amendment

**AMENDMENT NO. 129 TO BOUNDARIES OF MORENO VALLEY COMMUNITY SERVICES DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2021-01
(PARKS MAINTENANCE)**

SHEET 1 OF 1

**MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY OF MORENO VALLEY
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA**

(THIS MAP AMENDS, BY ADDING THE ADDITIONAL TERRITORY SHOWN HEREON, THE BOUNDARY MAP FOR MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE), CITY OF MORENO VALLEY, RIVERSIDE COUNTY, STATE OF CALIFORNIA, PRIOR RECORDED AT BOOK 88 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AT PAGE 95, IN THE OFFICE OF THE COUNTY RECORDER FOR THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.)

FILED IN THE OFFICE OF THE CITY CLERK OF THE CITY OF MORENO VALLEY THIS _____ DAY OF _____, 20__.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETARY OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT

I HEREBY CERTIFY THAT THE WITHIN MAP SHOWING AMENDED BOUNDARIES OF COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, WAS APPROVED BY THE BOARD OF DIRECTORS OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT AT A REGULAR MEETING THEREOF HELD ON THE _____ DAY OF _____, 20__, BY ITS RESOLUTION NO. _____.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETARY OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT

FILED THIS _____ DAY OF _____, 20__, AT THE HOUR OF _____ O'CLOCK
M. IN THE BOOK _____ PAGE(S) _____ OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. _____ IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

COUNTY RECORDER
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

REFERENCE IS MADE TO THAT BOUNDARY MAP OF THE COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT RECORDED WITH THE RIVERSIDE COUNTY RECORDER'S OFFICE ON MAY 4, 2021 IN BOOK 86 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS, PAGE 95 AS INSTRUMENT NO. 2021-028054.

REFERENCE IS FURTHER MADE TO ANNEXATION MAP NO. 4 OF COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA (TERRITORY PROPOSED FOR ANNEXATION IN THE FUTURE, WITH THE CONDITION THAT PARCELS WITHIN THAT TERRITORY MAY BE ANNEXED ONLY WITH THE UNANIMOUS APPROVAL OF THE OWNER OR OWNERS OF EACH PARCEL OR PARCELS AT THE TIME THAT PARCEL OR THOSE PARCELS ARE ANNEXED), RECORDED WITH THE RIVERSIDE COUNTY RECORDER'S OFFICE ON OCTOBER 27, 2021 IN BOOK 87, PAGE 81 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. 2021-085514 WHICH DESIGNATED THE TERRITORY SHOWN HEREON AS TERRITORY FOR FUTURE ANNEXATION TO THE COMMUNITY FACILITIES DISTRICT REFERENCED THEREON.

FOR PARTICULARS OF THE LINES AND DIMENSIONS OF ASSESSOR PARCELS, REFERENCE IS MADE TO THE MAPS OF THE ASSESSOR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA. THE RIVERSIDE COUNTY ASSESSOR'S MAPS SHALL GOVERN FOR ALL DETAILS CONCERNING THE LINES AND DIMENSIONS OF SUCH LOTS OR PARCELS.

Legend

Annexation Parcel

Surrounding Area Parcels

1 inch = 100 feet

VICINITY MAP

WILLDAN

2708 Via Induente, Suite 200
Torrance, CA 90503
(310) 907-2600

Attachment: Resolution Ordering Annexation - Amendment No. 129 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

RESOLUTION NO. 2023-____

A RESOLUTION OF THE BOARD FOR THE MORENO VALLEY COMMUNITY SERVICES DISTRICT OF THE CITY OF MORENO VALLEY, CALIFORNIA, ORDERING THE ANNEXATION OF TERRITORY TO MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) AND APPROVING AN AMENDED MAP FOR SAID DISTRICT

WHEREAS, by its Resolution No. CSD 2021-22, Board established the Moreno Valley Community Services District Community Facilities District No. 2021-01 (Parks Maintenance) (the "CFD"), pursuant to the Mello-Roos Community Facilities Act of 1982 (Government Code Section 53311 *et seq.*) (the "Act"); and

WHEREAS, by its Ordinance No. CSD 55, the Board authorized an annual special tax to be levied against all non-exempt parcels of real property within the CFD (the "Special Tax") to fund parks maintenance services; and

WHEREAS, in order to permit landowners to efficiently annex developing parcels to the CFD, the Board, by its Ordinance No. CSD 56 designated the entire territory of the City of Moreno Valley as a future annexation area for the CFD; and

WHEREAS, the landowner of the parcel listed on Exhibit A to this Resolution, which is attached hereto and incorporated herein by reference, has submitted to the District a petition requesting and approving annexation of the listed parcel (the "Annexation Parcel") to the CFD; and

WHEREAS, the Annexation Parcel is comprised of the territory shown on the boundary map (the "Boundary Map") entitled "Amendment No. 131 to Boundaries of Community Facilities District No. 2021-01 (Parks Maintenance), Moreno Valley Community Services District, City of Moreno Valley, County of Riverside, California" which is included as Exhibit B to this Resolution, and incorporated herein by this reference; and

WHEREAS, the Board desires to annex the Annexation Parcel to the CFD.

NOW, THEREFORE, THE BOARD FOR THE MORENO VALLEY COMMUNITY SERVICES DISTRICT OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

1. Recitals. The above recitals are all true and correct and are herein incorporated.
2. Annexation Approved. The Annexation Parcel is hereby added to and part of the CFD with full legal effect and is subject to the Special Tax.
3. Description of Services. The following is a general description of the services (the "Services") provided in the CFD:

1
Resolution No. 2023-____
Date Adopted: December 5, 2023

Maintaining, lighting, and operating parks and park improvements that are owned and operated by the CSD, to the extent such services are in addition to services already provided at the time CFD No. 2021-01 was created and do not supplant existing services.

Fundable services include (i) planting, replanting, mowing, trimming, irrigation and fertilization of grass, trees, shrubs, and other plants and vegetation, (ii) the operation, maintenance, repair, and replacement of irrigation systems and lighting systems, and (iii) the operation maintenance, repair and replacement of any real property or improvements with a useful life of more than five years.

Fundable costs include, but are not limited to: (i) contracted costs for such services, (ii) salaries and benefits of staff, including park rangers, devoted to such services, (iii) expenses related to equipment, apparatus, and supplies related to these services, (iv) administrative and overhead costs, including staff time, associated with providing such services, and (v) lifecycle costs associated with the repair and replacement of facilities and improvements.

4. Amended Boundary Map. The Boundary Map attached hereto as Exhibit B is hereby approved. This map amends, and does not supersede, the existing maps of the CFD. The Board directs that said map be filed with the Riverside County Recorder pursuant to Section 3113 of the Streets and Highways Code.

5. Notice of Special Tax Lien. The Board directs that an amended notice of special tax lien be recorded pursuant to Section 3117.5 of the Streets and Highways Code with respect to the Annexation Parcel associated with the Boundary Map.

6. This Resolution shall be effective immediately upon adoption.

7. The Secretary shall certify to the adoption of this Resolution, and shall maintain it on file as a public record this Resolution.

8. Severability. The Board declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

APPROVED AND ADOPTED this 5th day of December 2023.

Mayor of the City of Moreno Valley,
acting in the capacity as President of the
Board for the Moreno Valley Community
Services District

ATTEST:

City Clerk of the City of Moreno Valley,
acting in the capacity of Secretary of
the Moreno Valley Community
Services District

APPROVED AS TO FORM:

City Attorney of the City of Moreno Valley,
acting in the capacity of General Counsel
of the Moreno Valley Community Services District

Resolution No. CSD 2023-3
Date Adopted: December 5, 2023

Attachment: Resolution Ordering Annexation - Amendment No. 131 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

RESOLUTION JURAT

I, Jane Halstead, Secretary of the Moreno Valley Community Services District, Moreno Valley, California do hereby certify that Resolution No. CSD 2023-____ was duly and regularly adopted by the Board of Directors for the Moreno Valley Community Services District at a regular meeting held on the 5th day of December 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Boardmembers, Vice-President and President)

SECRETARY

(SEAL)

4
Resolution No. CSD 2023-____
Date Adopted: December 5, 2023

Attachment: Resolution Ordering Annexation - Amendment No. 131 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

EXHIBIT A

List of Annexation Parcel(s)

Amendment Map No.	Assessor's Parcel Number
131	482-536-010

Attachment: Resolution Ordering Annexation - Amendment No. 131 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

Resolution No. CSD 2023-5
Date Adopted: December 5, 2023

EXHIBIT B Boundary Map Amendment

**AMENDMENT NO. 131 TO BOUNDARIES OF MORENO VALLEY COMMUNITY SERVICES DISTRICT
COMMUNITY FACILITIES DISTRICT NO. 2021-01
(PARKS MAINTENANCE)**

SHEET 1 OF 1

**MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY OF MORENO VALLEY
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA**

(THIS MAP AMENDS, BY ADDING THE ADDITIONAL TERRITORY SHOWN HEREON, THE BOUNDARY MAP FOR MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE), CITY OF MORENO VALLEY, RIVERSIDE COUNTY, STATE OF CALIFORNIA, PRIOR RECORDED AT BOOK 88 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AT PAGE 86, IN THE OFFICE OF THE COUNTY RECORDER FOR THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.)

FILED IN THE OFFICE OF THE CITY CLERK OF THE CITY OF MORENO VALLEY THIS _____ DAY OF _____, 20____.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETARY OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT

I HEREBY CERTIFY THAT THE WITHIN MAP SHOWING AMENDED BOUNDARIES OF COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, WAS APPROVED BY THE BOARD OF DIRECTORS OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT AT A REGULAR MEETING THEREOF, HELD ON THE _____ DAY OF _____, 20____, BY ITS RESOLUTION NO. _____.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETARY OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT

FILED THIS _____ DAY OF _____, 20____, AT THE HOUR OF _____ O'CLOCK _____ M. IN THE BOOK _____ PAGE(S) _____ OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. _____ IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

COUNTY RECORDER
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

REFERENCE IS MADE TO THAT BOUNDARY MAP OF THE COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, RECORDED WITH THE RIVERSIDE COUNTY RECORDER'S OFFICE ON MAY 4, 2021 IN BOOK 88 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS, PAGE 86 AS INSTRUMENT NO. 2021-028004.

REFERENCE IS FURTHER MADE TO ANNEXATION MAP NO. 4 OF COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA (TERRITORY PROPOSED FOR ANNEXATION IN THE FUTURE, WITH THE CONDITION THAT PARCELS WITHIN THIS TERRITORY MAY BE ANNEXED ONLY WITH THE UNANIMOUS APPROVAL, OF THE OWNER OR OWNERS OF EACH PARCEL OR PARCELS AT THE TIME THAT PARCEL OR THOSE PARCELS ARE ANNEXED) RECORDED WITH THE RIVERSIDE COUNTY RECORDER'S OFFICE ON OCTOBER 27, 2021 IN BOOK 87, PAGE 81 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. 2021-065742 WHICH DESIGNATED THE TERRITORY SHOWN HEREIN AS TERRITORY FOR FUTURE ANNEXATION TO THE COMMUNITY FACILITIES DISTRICT REFERENCED THEREON.

FOR PARTICULARS OF THE LINES AND DIMENSIONS OF ASSESSOR PARCELS, REFERENCE IS MADE TO THE MAPS OF THE ASSESSOR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA. THE RIVERSIDE COUNTY ASSESSOR'S MAPS SHALL GOVERN FOR ALL DETAILS CONCERNING THE LINES AND DIMENSIONS OF SUCH LOTS OR PARCELS.

VICINITY MAP

Legend

- Annexation Parcel
- Surrounding Area Parcels

1 inch = 100 feet

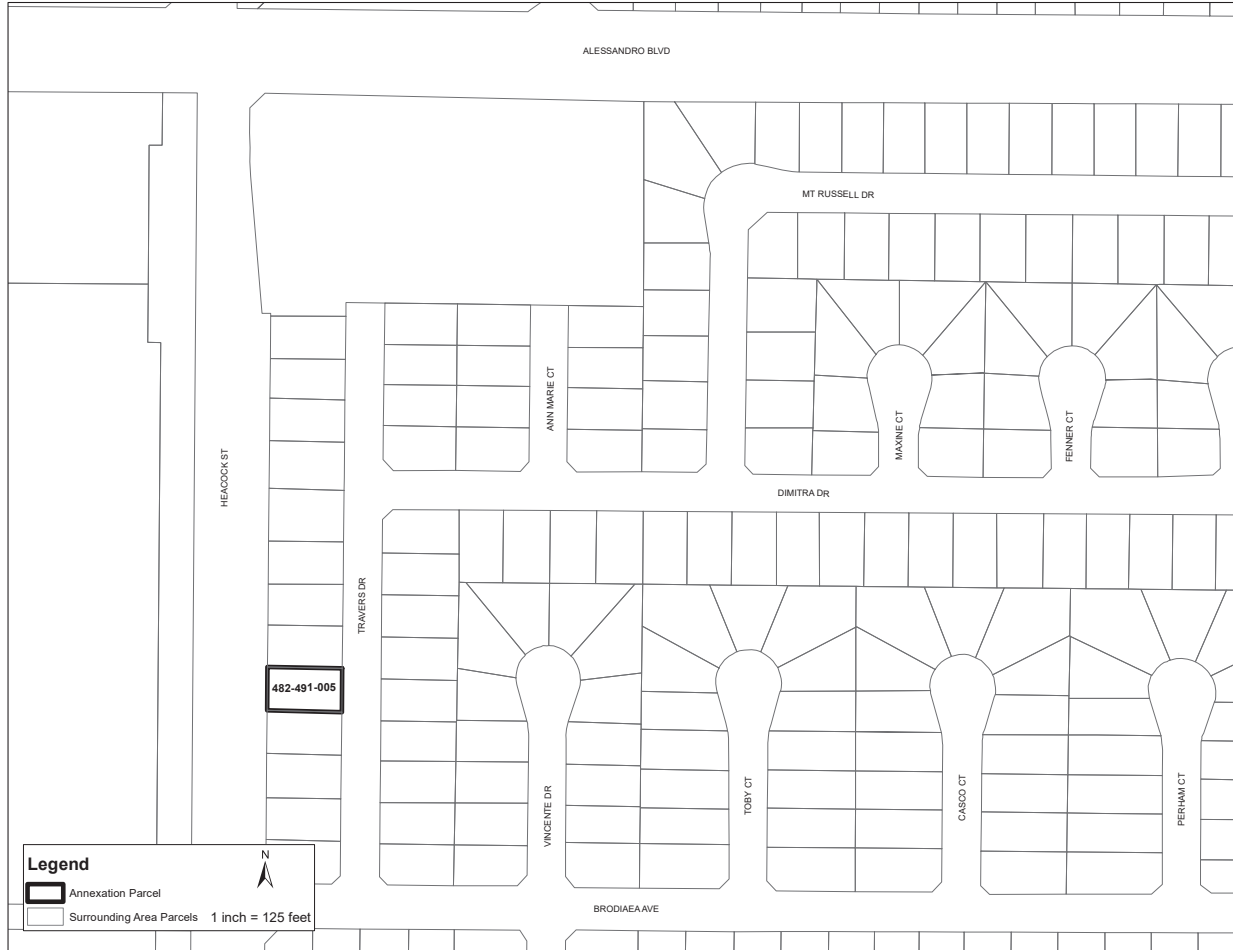
WILLDAN
2708 Via Induarte, Suite 200
Temecula, CA 92590
(951) 967-2600

Attachment: Resolution Ordering Annexation - Amendment No. 131 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN

AMENDMENT NO. 126 TO BOUNDARIES OF MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE)

MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY OF MORENO VALLEY
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

(THIS MAP AMENDS, BY ADDING THE ADDITIONAL TERRITORY SHOWN HEREON, THE BOUNDARY MAP FOR MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE), CITY OF MORENO VALLEY, RIVERSIDE COUNTY, STATE OF CALIFORNIA, PRIOR RECORDED AT BOOK 86 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AT PAGE 95, IN THE OFFICE OF THE COUNTY RECORDER FOR THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.)



FILED IN THE OFFICE OF THE CITY CLERK OF THE CITY OF MORENO VALLEY THIS _____, 20__.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETAR MORENO VALLEY COMMUNITY SERVICES DISTRICT

I HEREBY CERTIFY THAT THE WITHIN MAP SHOWING AMENDED BOUNDARIES OF COMMUNITY DISTRICT NO. 2021-01 (PARKS MAINTENANCE), OF THE MORENO VALLEY COMMUNITY SERVICES CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, WAS APPROVED BY THE DIRECTORS OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT AT A REGULAR THEREOF, HELD ON THE _____ DAY OF _____, 20__ BY ITS RESOLUTION NO. _____

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETAR MORENO VALLEY COMMUNITY SERVICES DISTRICT

FILED THIS _____ DAY OF _____, 20__, AT THE HOUR OF _____ M. IN THE BOOK _____ PAGE(S) _____ OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. _____ IN THE OFFICE OF THE RECORDER OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

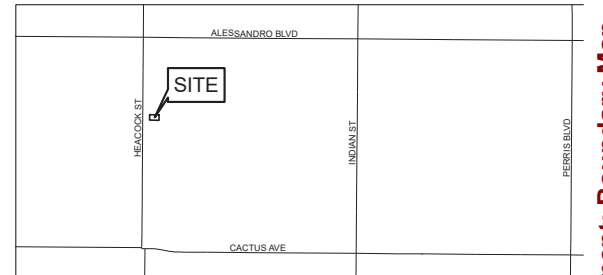
COUNTY RECORDER
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

REFERENCE IS MADE TO THAT BOUNDARY MAP OF THE COMMUNITY FACILITIES DISTRICT NO. 01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, RECORDED RIVERSIDE COUNTY RECORDER'S OFFICE ON MAY 4, 2021 IN BOOK 86 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS, PAGE 95 AS INSTRUMENT NO. 2021-0280004.

REFERENCE IS FURTHER MADE TO ANNEXATION MAP NO. 4 OF COMMUNITY FACILITIES DISTRICT NO. 01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA (TERRITORY PROPOSED FOR ANNEXATION TO THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA) FOR ANNEXATION TO THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, WITH THE CONDITION THAT PARCELS WITHIN THAT TERRITORY MAY BE ANNEXED ONLY WITH THE UNANIMOUS APPROVAL OF THE OWNER OR OWNERS OF EACH PARCEL OR PARCELS AT THE TIME OF RECORDING OF THIS MAP. THIS MAP IS RECORDED WITH THE RIVERSIDE COUNTY RECORDER'S OFFICE ON OCTOBER 27, 2021 IN BOOK 87, PAGE 81 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. 2021-0635742 WHICH DESIGNATED THE TERRITORY SHOWN HEREON AS TERRITORY FOR FUTURE ANNEXATION TO THE COMMUNITY FACILITIES DISTRICT REFERENCED IN THIS MAP.

FOR PARTICULARS OF THE LINES AND DIMENSIONS OF ASSESSOR PARCELS, REFERENCE IS MADE TO THE MAPS OF THE ASSESSOR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA. THE RIVERSIDE COUNTY RECORDER'S MAPS SHALL GOVERN FOR ALL DETAILS CONCERNING THE LINES AND DIMENSIONS OF LOTS OR PARCELS.

VICINITY MAP



Legend
 Annexation Parcel
 Surrounding Area Parcels
 1 inch = 125 feet

WI
27368 Via Industri
Temecula, CA 92
(951) 587-3500

Attachment: Boundary Map - Amendment No. 126 (6450 : PURSUANT TO LANDOWNER PETITIONS,

AMENDMENT NO. 129 TO BOUNDARIES OF MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE)

MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY OF MORENO VALLEY
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

(THIS MAP AMENDS, BY ADDING THE ADDITIONAL TERRITORY SHOWN HEREON, THE BOUNDARY MAP FOR MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE), CITY OF MORENO VALLEY, RIVERSIDE COUNTY, STATE OF CALIFORNIA, PRIOR RECORDED AT BOOK 86 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AT PAGE 95, IN THE OFFICE OF THE COUNTY RECORDER FOR THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.)



FILED IN THE OFFICE OF THE CITY CLERK OF THE CITY OF MORENO VALLEY THIS _____, 20__.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETAR MORENO VALLEY COMMUNITY SERVICES DISTRICT

I HEREBY CERTIFY THAT THE WITHIN MAP SHOWING AMENDED BOUNDARIES OF COMMUNITY DISTRICT NO. 2021-01 (PARKS MAINTENANCE), OF THE MORENO VALLEY COMMUNITY SERVICES CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, WAS APPROVED BY THE DIRECTORS OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT AT A REGULAR THEREOF, HELD ON THE ____ DAY OF ____, 20__ BY ITS RESOLUTION NO. _____

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETAR MORENO VALLEY COMMUNITY SERVICES DISTRICT

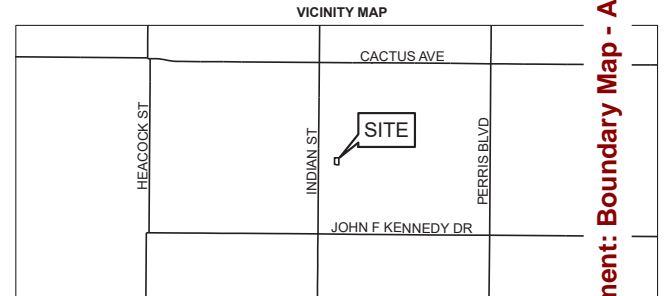
FILED THIS _____ DAY OF _____, 20__, AT THE HOUR OF _____ M. IN THE BOOK _____ PAGE(S) _____ OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. _____ IN THE OFFICE OF THE RECORDER OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

COUNTY RECORDER
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

REFERENCE IS MADE TO THAT BOUNDARY MAP OF THE COMMUNITY FACILITIES DISTRICT NO. 01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, RECORDED RIVERSIDE COUNTY RECORDER'S OFFICE ON MAY 4, 2021 IN BOOK 86 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS, PAGE 95 AS INSTRUMENT NO. 2021-028004.

REFERENCE IS FURTHER MADE TO ANNEXATION MAP NO. 4 OF COMMUNITY FACILITIES DISTRICT NO. 01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA (TERRITORY PROPOSED FOR ANNEXATION TO THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA) IN THE FUTURE, WITH THE CONDITION THAT PARCELS WITHIN THAT TERRITORY MAY BE ANNEXED ONLY WITH THE UNANIMOUS APPROVAL OF THE OWNER OR OWNERS OF EACH PARCEL OR PARCELS AT THE TIME OF ANNEXATION. THIS MAP IS RECORDED WITH THE RIVERSIDE COUNTY RECORDER'S OFFICE ON OCTOBER 27, 2021 IN BOOK 87, PAGE 81 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AS INSTRUMENT NO. 2021-0635742 WHICH DESIGNATED THE TERRITORY SHOWN HEREON AS TERRITORY FOR FUTURE ANNEXATION TO THE COMMUNITY FACILITIES DISTRICT REFERENCED T

FOR PARTICULARS OF THE LINES AND DIMENSIONS OF ASSESSOR PARCELS, REFERENCE IS MADE TO THE MAPS OF THE ASSESSOR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA. THE RIVERSIDE COUNTY RECORDER'S MAPS SHALL GOVERN FOR ALL DETAILS CONCERNING THE LINES AND DIMENSIONS OF LOTS OR PARCELS.



WI
27368 Via Industri
Temecula, CA 92
(951) 587-3500

Attachment: Boundary Map - Amendment No. 129 (6450 : PURSUANT TO LANDOWNER PETITIONS,

AMENDMENT NO. 131 TO BOUNDARIES OF MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE)

MORENO VALLEY COMMUNITY SERVICES DISTRICT
CITY OF MORENO VALLEY
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

(THIS MAP AMENDS, BY ADDING THE ADDITIONAL TERRITORY SHOWN HEREON, THE BOUNDARY MAP FOR MORENO VALLEY COMMUNITY SERVICES DISTRICT COMMUNITY FACILITIES DISTRICT NO. 2021-01 (PARKS MAINTENANCE), CITY OF MORENO VALLEY, RIVERSIDE COUNTY, STATE OF CALIFORNIA, PRIOR RECORDED AT BOOK 86 OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AT PAGE 95, IN THE OFFICE OF THE COUNTY RECORDER FOR THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.)



FILED IN THE OFFICE OF THE CITY CLERK OF THE CITY OF MORENO VALLEY THIS _____, 20__.

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETAR MORENO VALLEY COMMUNITY SERVICES DISTRICT

I HEREBY CERTIFY THAT THE WITHIN MAP SHOWING AMENDED BOUNDARIES OF COMMUNITY I DISTRICT NO. 2021-01 (PARKS MAINTENANCE), OF THE MORENO VALLEY COMMUNITY SERVICES CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, WAS APPROVED BY TH OF DIRECTORS OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT AT A REGULAR THEREOF, HELD ON THE ____ DAY OF ____, 20__ BY ITS RESOLUTION NO. _____

CITY CLERK OF THE CITY OF MORENO VALLEY, ACTING IN THE CAPACITY OF THE SECRETAR MORENO VALLEY COMMUNITY SERVICES DISTRICT

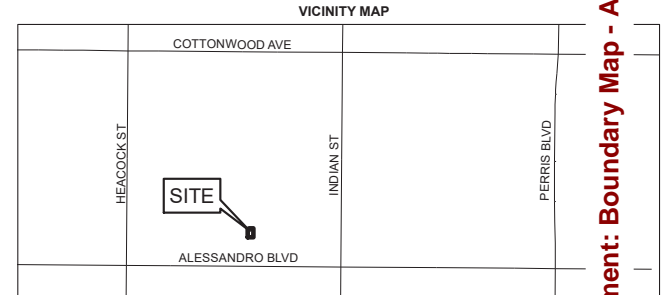
FILED THIS _____ DAY OF _____, 20__, AT THE HOUR OF _____ M. IN THE BOOK _____ PAGE(S) _____ OF MAPS OF ASSESSMENT AND C FACILITIES DISTRICTS AS INSTRUMENT NO. _____ IN THE OFFICE OF TH RECORDER OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

COUNTY RECORDER
COUNTY OF RIVERSIDE
STATE OF CALIFORNIA

REFERENCE IS MADE TO THAT BOUNDARY MAP OF THE COMMUNITY FACILITIES DISTRICT N (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, RECORDED RIVERSIDE COUNTY RECORDER'S OFFICE ON MAY 4, 2021 IN BOOK 86 OF MAPS OF ASSESS COMMUNITY FACILITIES DISTRICTS, PAGE 95 AS INSTRUMENT NO. 2021-0280004.

REFERENCE IS FURTHER MADE TO ANNEXATION MAP NO. 4 OF COMMUNITY FACILITIES DISTRICT 01 (PARKS MAINTENANCE) OF THE MORENO VALLEY COMMUNITY SERVICES DISTRICT, CITY OF VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA (TERRITORY PROPOSED FOR ANNEXATI FUTURE, WITH THE CONDITION THAT PARCELS WITHIN THAT TERRITORY MAY BE ANNEXED ONLY UNANIMOUS APPROVAL OF THE OWNER OR OWNERS OF EACH PARCEL OR PARCELS AT THE T PARCEL OR THOSE PARCELS ARE ANNEXED) RECORDED WITH THE RIVERSIDE COUNTY RE OFFICE ON OCTOBER 27, 2021 IN BOOK 87, PAGE 81 OF MAPS OF ASSESSMENT AND COMMUNITY DISTRICTS AS INSTRUMENT NO. 2021-0635742 WHICH DESIGNATED THE TERRITORY SHOWN I TERRITORY FOR FUTURE ANNEXATION TO THE COMMUNITY FACILITIES DISTRICT REFERENCED T

FOR PARTICULARS OF THE LINES AND DIMENSIONS OF ASSESSOR PARCELS, REFERENCE IS MAI MAPS OF THE ASSESSOR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA. THE RIVERSIDE ASSESSOR'S MAPS SHALL GOVERN FOR ALL DETAILS CONCERNING THE LINES AND DIMENSIONS LOTS OR PARCELS.



Legend

- Annexation Parcel
- Surrounding Area Parcels

1 inch = 100 feet

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Temecula, CA 92
(951) 587-3500

Attachment: Boundary Map - Amendment No. 131 (6450 : PURSUANT TO LANDOWNER PETITIONS,

**CERTIFICATE OF ELECTION OFFICIAL
AND CONFIRMATION OF LANDOWNER PETITION**

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

The undersigned, Election Official of the City of Moreno Valley, County of Riverside, State of California, Does Hereby Certify that on **October 31, 2023**, I did verify the completeness of the Landowner Petition for the annexation of property into:

COMMUNITY FACILITIES DISTRICT NO. 2021-01 OF THE
MORENO VALLEY COMMUNITY SERVICES DISTRICT
OF THE CITY OF MORENO VALLEY

AMENDMENT NO. 126

WITNESS my hand this 31st day of October 2023.



ELECTION OFFICIAL
CITY OF MORENO VALLEY
STATE OF CALIFORNIA

Attachment: Certificate of Election Official - Amendment No. 126 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN PARCELS

**CERTIFICATE OF ELECTION OFFICIAL
AND CONFIRMATION OF LANDOWNER PETITION**

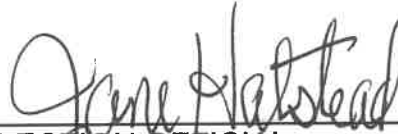
STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

The undersigned, Election Official of the City of Moreno Valley, County of Riverside, State of California, Does Hereby Certify that on **November 13, 2023**, I did verify the completeness of the Landowner Petition for the annexation of property into:

**COMMUNITY FACILITIES DISTRICT NO. 2021-01 OF THE
MORENO VALLEY COMMUNITY SERVICES DISTRICT
OF THE CITY OF MORENO VALLEY**

AMENDMENT NO. 129

WITNESS my hand this 13th day of November 2023.



ELECTION OFFICIAL
CITY OF MORENO VALLEY
STATE OF CALIFORNIA

Attachment: Certificate of Election Official - Amendment No. 129 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN PARCELS

**CERTIFICATE OF ELECTION OFFICIAL
AND CONFIRMATION OF LANDOWNER PETITION**

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

The undersigned, Election Official of the City of Moreno Valley, County of Riverside, State of California, Does Hereby Certify that on **November 9, 2023**, I did verify the completeness of the Landowner Petition for the annexation of property into:

COMMUNITY FACILITIES DISTRICT NO. 2021-01 OF THE
MORENO VALLEY COMMUNITY SERVICES DISTRICT
OF THE CITY OF MORENO VALLEY

AMENDMENT NO. 131

WITNESS my hand this 9th day of November 2023.



ELECTION OFFICIAL
CITY OF MORENO VALLEY
STATE OF CALIFORNIA

Attachment: Certificate of Election Official - Amendment No. 131 (6450 : PURSUANT TO LANDOWNER PETITIONS, ANNEX CERTAIN PARCELS



Report to City Council

TO: Mayor and City Council

FROM: Sean P. Kelleher, Community Development Director

AGENDA DATE: December 5, 2023

TITLE: GATEWAY HEIGHTS 108 UNIT CONDOMINIUM PROJECT

RECOMMENDED ACTION

Recommendations: That the City Council:

1. **ADOPT** Resolution 2023-XX:
 1. **CERTIFYING** the Initial Study/Mitigated Negative Declaration prepared for the Proposed Project consisting of General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096), Tentative Tract Map 38459 (PEN22-0127) and Conditional Use Permit (PEN21-0066); and
 2. **ADOPTING** the Mitigation Monitoring and Reporting Program prepared for the Mitigated Negative Declaration; and
2. **ADOPT** Resolution 2023-XX:
 1. **APPROVING** General Plan Amendment (PEN20-0095), Tentative Tract Map 38459 (PEN22-0127) and Conditional Use Permit (PEN21-0066); and
3. **INTRODUCE** Ordinance No. [next in order]:
 1. Approving a Change of Zone (PEN20-0096) and corresponding amendment to the City's Zoning Atlas.

SUMMARY

Staff recommends approving the Proposed Project consisting of General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096), Tentative Tract Map 38459 (PEN22-0127), and Conditional Use Permit (PEN21-0066), for the development of a 108-unit townhouse condominium project and associated amenities and public

improvements.

BACKGROUND

On September 5, 2023, the City Council continued the public hearing for the Proposed Project, allowing the applicant time to address concerns associated with Parking, Emergency Access, and Biological Resources, which are discussed further below.

Parking

Based on the comments received, the Applicant prepared a Parking Analysis and modified the Project Site to provide additional parking. The Proposed Project now includes 283 parking spaces, including 216 spaces within enclosed garages, 27 guest parking spaces, and 40 open parking spaces along Streets B and C. The 283 parking spaces exceed the 243 parking spaces that are required for the Proposed Project.

Additionally, the Applicant has offered three conditions of approval requiring owners to utilize their garages for parking, register their vehicles with the Homeowners Association, and provide signage and striping for all guest parking spaces.

Emergency Access

The Emergency Access for the Proposed Project at Morton Road was designed by the Applicant in consultation with the City's Fire Prevention Division. The Applicant has confirmed that in the event of an emergency, first responders will have access to the Knox Box at Poarch Road and the 215 Freeway and they can direct residents and guests to the appropriate evacuation routes.

Biological Resources

In compliance with the California Environmental Quality Act and the Multiple Species Habitat Conservation Plan, a Biological Resources Analysis was prepared as part of the Initial Study for the Proposed Project. As part of the field analysis, the Proposed Project's Biologist visited the Project Site, and did not find any special status plants.

At the September 5th Public Hearing, the Plummer's Mariposa Lily was discussed. The Plummer's Mariposa Lily however is not identified or designated as a State or federally listed endangered or threatened species. Additionally, the proposed project includes a 15.97-acre remainder parcel that will be maintained as natural open space.

DISCUSSION

The Proposed Project was considered by the Planning Commission at a duly noticed public hearing conducted on June 8, 2023, and the Planning Commission voted unanimously 4-0 to certify and approve the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program and approve General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096), Tentative Tract Map 38459 (PEN22-0127), and Conditional Use Permit (PEN21-0066) for the Proposed Project.

Proposed Project

The Proposed Project consists of a General Plan Amendment to change the existing land use designation to Residential 10 and Parks/Open Space with a Change of Zone to change the zoning designation to Residential 10 (R10) District and Open Space (OS) district. The Proposed Project also includes a Conditional Use Permit (CUP) for a Planned Unit Development (PUD) and a Tentative Tract Map (TTM) to develop a 108 unit townhouse condominium project, on a 16.59-acre portion of 32.56-acre Project Site.

The 15.97-acre remainder parcel will either be granted to the County of Riverside by the applicant to become part of the Box Springs Mountain Reserve or will be maintained by the Homeowners Association as natural open space. Additionally, the Proposed Project, as designed, will incorporate a 0.89-acre park which will also be maintained by the Homeowners Association, but will permit public access. The Proposed Project will also include the construction of a portion of a County Flood Control Master Planned Culvert (Master Drainage Plan Line-B) as well as other on-site and off-site improvements.

General Plan Amendment

A General Plan Amendment (GPA) application was submitted to change the land use designation of the Project Site from R2 Residential and Hillside Residential to R10 Residential and Parks/Open Space. The R10 land use designation is intended to provide for a variety of residential products and encourage innovation in housing types with amenities not generally found in suburban subdivisions, such as common open spaces and recreational areas. The primary purpose of areas designated Parks/Open Space is to provide areas that are substantially unimproved, including, but not limited to, areas for outdoor recreation and the preservation of natural resources. The proposed General Plan Designations will allow for the Proposed Project to be constructed on a 16.59-acre portion of the 32.56-acre Project Site while retaining the remainder of the Project Site as Open Space.

Change of Zone

A Change of Zone (CZ) application was submitted to rezone the Project Site from Residential 2 (R2) District and Hillside Residential (HR) District to Residential 10 (R10) District and Open Space (OS) District. Under the Proposed Project's current Residential (R2) District, a maximum of 2.0 units per gross acre is allowed. To obtain the desired number of units, a change of zone is required to rezone the Project Site to Residential 10 (R10) District, which allows up to 10.0 units per gross acre.

Conditional Use Permit for a Planned Unit Development

The Applicant is requesting a Conditional Use Permit for a Planned Unit Development (PUD) to allow for flexible standards to address the unique characteristics of the Project Site. The PUD document (graphics and text) prepared for the Proposed Project will establish the land use regulations, development standards, and design guidelines for the tract, including the dedication of permanent open space.

The PUD document also provides guidelines for architectural themes for the townhomes that meet or exceed City-wide design standards in the Municipal Code. All development within the tract must meet the standards stated in the PUD, including plotting, setbacks, open space areas, and architecture. Additionally, the PUD provides design guidance for community entrances and perimeter fencing around the community and around the drainage areas.

Tentative Tract Map

Tentative Tract Map No. 38459 will subdivide the 32.56 gross acres of vacant and unimproved land into one 16.59-acre (common-area) lot for 108 condominium units, and one 15.97-acre “remainder” lot for public open space. The Tentative Map would also create the interior private loop streets and dedicate the 0.89-acre park site. All on-site streets and drainage facilities will be maintained lots by the Homeowners Association.

Site/Surrounding Area

The 32.56-acre Project Site is a vacant and unimproved pie-shaped hillside lot located on the east side of Morton Road at the northwestern City boundary. To the north, properties are located within unincorporated Riverside County and are part of the Box Springs Mountain Reserve. Properties to the east are vacant and located within the Hillside Residential (HR) District. Properties to the west are also located within unincorporated Riverside County and are designated as “Gateway Center” Specific Plan. Properties to the south are located within the Residential 5 (R5) District and Hillside Residential (HR) District and are generally developed with single-family homes.

Access/Parking

The Proposed Project’s access will be provided by Morton Road with a private loop road serving the residential units. The Proposed Project has been designed to exceed the minimum parking requirements, providing a two-car garage for each residential unit, as well as 50 guest parking spaces along the private streets.

Design/Landscaping

The PUD guidelines for the Proposed Project will include two elevation styles: Santa Barbara and Modern Farmhouse. Each building style will have three color combinations to provide interest among the housing types.

The PUD includes typical configurations for the new homes and common area landscaping. The HOA will maintain all common area landscaping in an effort to maintain a consistent well-maintained appearance of the streetscapes within the community. The Proposed Project also includes a 0.89-acre park that will primarily serve the local neighborhood, including adjoining developed residential areas.

REVIEW PROCESS

All appropriate outside agencies have considered the Proposed Project in the context of the standard review process. The Proposed Project was reviewed by the Project

Review Staff Committee as required by the Municipal Code. Following subsequent revisions and reviews by staff, the Proposed Project was determined to be complete.

ENVIRONMENTAL

An Initial Study was prepared by Psomas, in compliance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The Initial Study examined the potential impacts of the Proposed Project on the environment. The Initial Study/Mitigated Negative Declaration (IS/MND) serves as the appropriate CEQA documentation for the Proposed Project. With the implementation of the proposed mitigation measures, the Proposed Project will not have a significant effect on the environment. Technical studies prepared in support of the IS/MND include the following: Air Quality Calculations, Biological Resources Report, Jurisdictional Delineation, Rare Plant Survey Report, Burrowing Owl Survey Report, and Determination of Biologically Equivalent or Superior Preservation (DBESP) Report, Cultural Reports, Energy Calculations, Geotechnical Report, Slope Stability Report, EDR Radius Map Report, Preliminary Drainage Report, Project Specific Water Quality Management Report, Planned Unit Development, Traffic Impact Analysis, and Fire Hazard Analysis and Approach. Copies of the appendices to the IS/MND can be accessed from the link attached to this staff report. The documents were made available for review and inspection at City Hall during operating hours.

Mitigation measures are recommended for the Proposed Project in the following areas: Aesthetics, Biological Resources, Cultural Resources, Energy, Geology and Soils, Hazards and Hazardous Materials, Public Resources, and Tribal Cultural Resources, all of which are incorporated into the Mitigation Monitoring and Report Program (MMRP). The measures for cultural resources have been included to address input from the Tribal governments. The measures are intended to ensure that potential resources that might be discovered are protected. However, these measures are not required to address a known significant impact. Based on the Initial Study and the proposed mitigation measures, the Proposed Project will not cause any significant impacts to the environment. In response to comments received from the California Department of Fish and Wildlife, mitigation measures have been slightly modified. These modifications do not result in a substantial change that would require recirculation of the environmental document.

The public comment period for the Notice of Availability of the Initial Study/Mitigated Negative Declaration began on March 2, 2023, and ended on March 31, 2023, (State Clearing House Number 2023020680), which satisfies the required 30-day review period required for the Proposed Project.

ALTERNATIVES

1. Certify and approve the Initial Study/Mitigated Negative Declaration and the Mitigated Monitoring and Reporting Program, and approve the Proposed Project. *(Staff recommends this alternative.)*
2. Deny the Proposed Project. *(Staff does not recommend this alternative.)*

FISCAL IMPACT

The Development of the Proposed Project will result in an increase in property taxes received by the City. Additionally, the Proposed Project will construct a portion of a County Flood Control Master Planned Culvert (Master Drainage Plan Line-B) and an 0.89-acre park within the development that will be owned and maintained by the Homeowners Association, and open to the general public for use.

NOTIFICATION

Consistent with the Municipal Code provisions, public notice was sent to all property owners of record within 600 feet of the Project Site, posted on the Project Site, and published in the Press Enterprise Newspaper.

PREPARATION OF STAFF REPORT

Prepared By:
Kirt Coury
Contract Planner

Department Head Approval:
Sean P. Kelleher
Community Development Director

CITY COUNCIL GOALS

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

1. Economic Development
2. Public Safety
3. Library
4. Infrastructure
5. Beautification, Community Engagement, and Quality of Life
6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

1. Resolution No. 2023-XX - Initial Study
2. Exhibit A to Resolution No. 2023-XX - Initial Study
3. Appendices A-G
4. Appendices H-L

- 5. Exhibit B to Resolution No. 2023-XX - Notice of Intent to Adopt a Mitigated Negative Declaration
- 6. Exhibit C to Resolution No. 2023-XX - Mitigation Monitoring and Reporting Program
- 7. Ordinance No. XXXX
- 8. Resolution No. 2023-XX General Plan Amendment_CUP_Map
- 9. Gateway Heights PUD - 1 of 3
- 10. Gateway Heights PUD - 2 of 3
- 11. Gateway Heights PUD - 3 of 3
- 12. Project Plans
- 13. Aerial Map
- 14. Planning Commission Staff Report
- 15. Public Comments Presented to Planning Commission on June 8, 2023
- 16. Public Comment for City Council
- 17. Parking Study_November 13 2023
- 18. Applicant Volunteered Conditions of Approval

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/27/23 4:03 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/27/23 4:06 PM

RESOLUTION NUMBER 2023-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, CERTIFYING AND ADOPTING A MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR A GENERAL PLAN AMENDMENT (PEN20-0095), CHANGE OF ZONE (PEN20-0096), CONDITIONAL USE PERMIT (PEN21-0066) AND TENTATIVE TRACT MAP 38459 (PEN22-0127) FOR THE DEVELOPMENT OF A 108-UNIT TOWNHOUSE CONDOMINIUM PROJECT

WHEREAS, the City of Moreno Valley (“City”) is a general law city and a municipal corporation of the State of California, and the lead agency for the preparation and consideration of environmental documents for local projects that are subject to requirements of the California Environmental Quality Act (CEQA) and CEQA Guidelines; and

WHEREAS, HengHou Group (“Applicant”) has submitted applications for the approval of General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096) Conditional Use Permit (PEN21-0066) and Tentative Tract Map 38459 (PEN22-0127) for the development of a 108-unit detached townhouse condominium Planned Unit Development on 32.56-acres, with associated amenities and public improvements (“Proposed Project”) located on the east side of Morton Road, approximately 300 feet north of Jennings Court (APN 256-150-001) (“Project Site”); and

WHEREAS, Planning Division Staff completed an Initial Study for the proposed Project, and, based on the Initial Study, recommended certification of a Mitigated Negative Declaration (“MND”) and approval of a Mitigation Monitoring and Reporting Program (“MMRP”) in accordance with Section 6 (ND Procedures) of the City’s Rules and Procedures for the Implementation of the California Environmental Quality Act and the requirements of the CEQA the CEQA Guidelines Sections 15070 – 15075; and

WHEREAS, a Notice of Intent to Adopt a Mitigated Negative Declaration was duly noticed and circulated for public review for a period of 30 days commencing on March 2, 2023, through March 31, 2023; and

WHEREAS, in compliance with CEQA and the CEQA Guidelines, a Mitigation Monitoring and Reporting Program (“MMRP”) that includes a program for reporting and monitoring the Proposed Projects’ mitigation measures was prepared for the Proposed Project and circulated with the Mitigated Negative Declaration; and

WHEREAS, on June 8, 2023, a hearing was conducted by the Planning Commission whereby the Planning Commission approved Planning Commission Resolution 2023-22, recommending the City Council certify and approve the Initial Study/Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, and approve the Proposed Project; and

¹ Public Resources Code §§ 21000-21177

¹ 14 California Code of Regulations §§15000-15387

WHEREAS, on September 5, 2023, the City Council continued the consideration of the Proposed Project to a future date; and

WHEREAS, on December 5, 2023, a hearing was conducted by the City Council to approve the Mitigated Negative Declaration/Initial Study, Mitigation Monitoring and Reporting Program, and the Proposed Project; and

WHEREAS, at the conclusion of the December 5, 2023 public hearing, in the exercise of its own independent judgment, the City Council determined that the Initial Study/Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program will reduce the environmental impacts of the Proposed Project to levels of insignificance and that there is no substantial evidence supporting a fair argument that the Proposed Project will have a significant effect on the environment.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals and Exhibits

That the foregoing Recitals and attached exhibits are true and correct and are hereby incorporated by this reference.

Section 2. Evidence

That the City Council has considered all the evidence submitted into the Administrative Record for the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, including, but not limited to, the following:

- (a) Initial Study/Mitigated Negative Declaration prepared for the Proposed Project, attached hereto as Exhibit A;
- (b) Notice of Intent to Adopt a Mitigated Negative Declaration and Newspaper Notice, attached hereto as Exhibit B;
- (c) Mitigation Monitoring and Reporting Program, attached hereto as Exhibit C;
- (d) Staff Report prepared for the Planning Commission's consideration and all documents, records, and references related thereto, and Staff's presentation at the public hearing; and
- (e) Testimony, comments, and correspondence from all persons that were provided at, or prior to, the June 8, 2023, Planning Commission public hearing;
- (f) Planning Commission Resolution No. 2023-22, recommending that the City Council certify and approve the Initial Study/Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, and approved the Proposed Project;
- (g) Staff Report for the City Council's consideration and all documents, records, and references related thereto, and Staff's presentation at the September 5, 2023, and December 5, 2023, public hearing; and

- (h) Testimony, comments, and correspondence from all persons that were provided at, or prior to, the City Council September 5, 2023, and December 5, 2023 public hearing; and

Section 3. Findings

That based on the content of the foregoing Recitals and the Evidence contained in the Administrative Record, the City Council makes the following findings:

- (a) That the City Council and the City as Lead Agency has independently reviewed, analyzed, and considered the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, and the whole record before it, including, the Initial Study and comments received; and
- (b) That the proposed mitigation measures will reduce all environmental impacts of the Proposed Project to levels of insignificance and there is no substantial evidence supporting a fair argument that the Proposed Project will have a significant effect on the environment; and
- (c) That the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program have been completed in compliance with CEQA and the CEQA Guidelines consistent the City's Rules and Procedures for the Implementation of the California Environmental Quality Act; and
- (d) That the Mitigated Negative Declaration/Initial Study and Mitigation Monitoring and Reporting Program reflect the independent judgment and analysis of the City Council and the City as Lead Agency for the Proposed Project; and
- (e) That the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program are adequate to serve as the required CEQA environmental documentation for the proposed Project.

Section 4. Adoption

That based on the foregoing Recitals, Evidence and Findings, the City Council hereby certifies and adopts the Mitigated Negative Declaration/Initial Study attached hereto as Exhibit A and the Mitigation Monitoring and Reporting Program attached hereto as Exhibit C.

Section 5. Repeal of Conflicting Provisions

That all the provisions as heretofore adopted by the City Council that are in conflict with the provisions of this Resolution are hereby repealed.

Section 6. Severability

That the City Council declares that, should any provision, section, paragraph, sentence, or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 7. Effective Date

That this Resolution shall take effect immediately upon the date of adoption.

Section 8. Certification

That the City Clerk for the City Council shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS 5th day of December 2023

CITY OF MORENO VALLEY
CITY COUNCIL

Ulises Cabrera,
Mayor of the City of Moreno Valley

ATTEST:

Jane Halstead, City Clerk

APPROVED AS TO FORM:

Steven B. Quintanilla,
Interim City Attorney

- Exhibits:
- Exhibit A: Mitigated Negative Declaration/Initial Study
 - Exhibit B: Notice of Intent to Adopt a Mitigated Negative Declaration / Newspaper Notice
 - Exhibit C: Mitigation Monitoring Plan

Attachment: Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

Exhibit A
Initial Study



CITY OF MORENO VALLEY

INITIAL STUDY FOR THE GATEWAY HEIGHTS PROJECT



GATEWAY HEIGHTS PROJECT PEN 21-0066

February 2023

Lead Agency
CITY OF MORENO VALLEY
14177 Frederick Street
Moreno Valley, California 92553

Prepared By
PSOMAS
Contact: Sean Noonan, AICP
5 Hutton Centre Drive, Suite 300
Santa Ana, California 92707

Volume 1

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

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APPENDICES (provided in Volume 2)

A	Air Quality Calculations
B	Biological Resources Report, Jurisdictional Delineation, Rare Plant Survey Report, Burrowing Owl Survey Report, and Determination of Biologically Equivalent or Superior Preservation (DBESP) Report
C	Cultural Reports
D	Energy Calculations
E	Geotechnical Report
F	Slope Stability Report
G	EDR Radius Map Report
H	Preliminary Drainage Report
I	Project Specific Water Quality Management Plan
J	Planned Unit Development
K	Traffic Impact Analysis
L	Fire Hazard Analysis and Approach Memorandum

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)



INITIAL STUDY (IS) FOR THE GATEWAY HEIGHTS PROJECT

BACKGROUND INFORMATION AND PROJECT DESCRIPTION:

1. **Project Case Number(s):** PEN 21-0066
2. **Project Title:** Gateway Heights Project
3. **Public Comment Period:** February 15, 2023 to March 16, 2023
4. **Lead Agency:** City of Moreno Valley
Community Development
Luis Lopez, Contract Planner
14177 Frederick Street
Moreno Valley, California 92553
(951) 413-3206
LuisL@moval.org
5. **Documents Posted At:** <http://www.moval.org/cdd/documents/about-projects.html>
6. **Prepared By:** Sean Noonan, AICP
Psomas
5 Hutton Centre Drive, Suite 300
Santa Ana, California 92707
714-481-8035
Sean.Noonan@Psomas.com

7. Project Sponsor:

Applicant/Developer

Jason Ackerman
Ackerman Law PC
3200 East Guasti Road, Suite100
Ontario, California 91761
Phone: 909- 456-1460
Email: jason.ackerman@ackermanlawpc.com

Property Owner

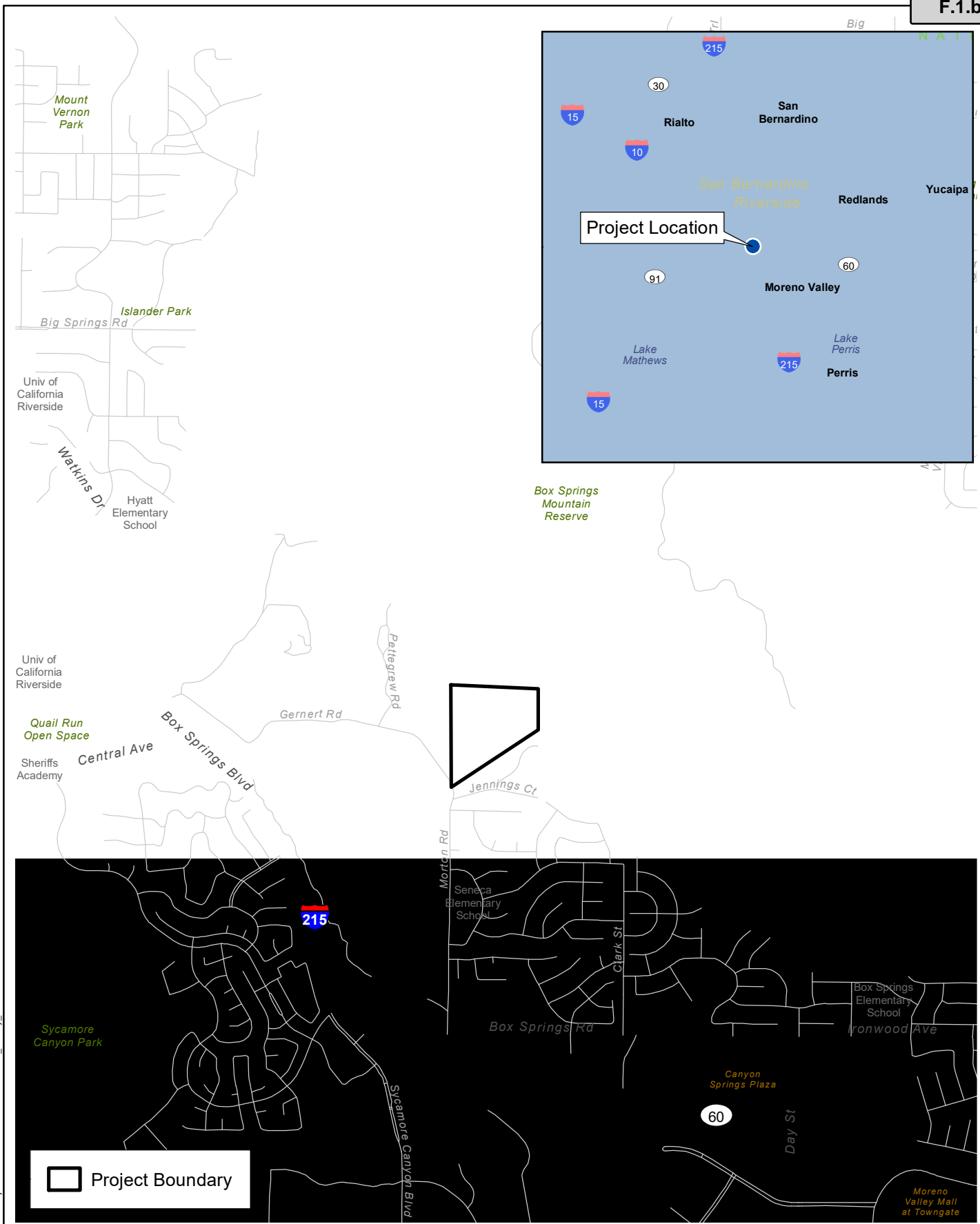
Shizao Zheng

1378 West Zhongshan Road
Ningbo City, Zhejiang Province, China
Phone: 626-666-1470

8. **Project Location:** The Project Site is located approximately one mile north of the State Route (SR) 60 and Interstate (I) 215 interchange. The Project Site is approximately 110 feet north of Jennings Court and immediately east of Morton Road in the western portion of the City of Moreno Valley, Riverside County, California, as shown in Figure 1, Vicinity Map. The Project Site is bounded on the northerly and westerly property lines by the Riverside County jurisdictional border. The Project Site is comprised of Tax Assessor Parcel Number (APN) 256-150-001 and is located entirely within the City of Moreno Valley.

The Project Site is located in Section 34 of Township 2 South, Range 4 West, Riverside East 7.5 minute quadrangle map. The approximate center of the Project Site is at longitude 117°17'39.77"W and latitude 33°57'34.95"N.

9. **General Plan Designation:** Residential 2 (R2) and Hillside Residential (HR)
10. **Specific Plan Name and Designation:** Not applicable for APN 256-150-001.



Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

Vicinity Map

Gateway Heights Project

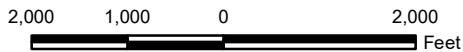


Figure 1



D:\Projects\3ZHE\0100\MXD\ISM\NDex_Vicinity_20210701.mxd

11. Existing Zoning: Residential 2 (R2) and Hillside Residential (HR)

As defined in the City’s Municipal Code, the primary purpose of the R2 district is to provide for suburban lifestyles on residential lots larger than are commonly available in suburban subdivisions, and to allow non-equestrian residential developments in a rural atmosphere. This district is intended as an area for development of large lot, single-family residential development at a maximum allowable density of two dwelling units per net acre.

The primary purpose of the HR district is to balance the preservation of hillside areas with the development of view oriented residential uses. It is the further intent of this district to provide regulations for the limited development of those hillside areas in a manner that would maintain natural open space areas, protect significant landforms and other natural resources, protect views from existing development, retain opportunities for views from development sites, preserve and enhance vistas from public places, minimize the extent and occurrence of erosion and other potential hazards of development in areas of steep topography, and generally protect the public health, safety and welfare. The keeping of animals is permitted, however, the keeping of large animals may be prohibited subject to compatibility with local urbanization and topographic constraints.

12. Surrounding Land Uses and Setting:

	Land Use	Zoning
Project Site	Vacant, Hillside	R2 and HR
North	Vacant, Hillside	HR
South	Single-Family Residential	R5
East	Vacant, Hillside	HR
West	Vacant	Gateway Center Specific Plan*

R2: Residential 2; HR: Hillside Residential; R5: Residential 5; MDR: Medium Density Residential
 Sources: Moreno Valley 2020a, 2020b, and 2021b; County of Riverside, 2021).
 *Parcels to the west of Morton Road are located within unincorporated Riverside County, and the City of Riverside sphere of influence. Land use and zoning pursuant to County records.

13. Description of the Site and Project:

Environmental Setting

The Project Site is characterized as undeveloped, vacant lands situated in the southwestern foothills of the Box Springs Mountains. Elevations in the Project Site range from approximately 1,590 feet above mean sea level (amsl) in the southwest corner to 2,080 feet amsl in the northeast corner. A Project Location Map is provided as Figure 2, which shows the Project Site and its general environmental setting. Also, the Project Site is depicted in Figure 3, Site Photographs.

The Project Site is surrounded by vacant, undeveloped land to the north, east, and west with large-lot single-family residential uses to the south and southeast. The Box Springs Mountain Park and Reserve is located north of the Project Site, which is owned by several entities including the County of Riverside, University of California, and Western Riverside County Regional Conservation Authority.

Several erosional features with deep incised banks occur throughout the Project Site and are the result of sheet flow off Box Springs Mountain. There is also evidence of natural springs and one pool along the eastern portion of the Project Site near the base of the Box Springs Mountains.

Sometime between 1942 and 1955, the northeastern portion of the Project Site was developed with residences, which were accessible from a dirt access road. Although the residences were previously removed, the dirt road remains along with eucalyptus trees, which are assumed to have been planted around the residences. Also, several unauthorized dirt off-highway vehicle trails traverse the Project Site.



Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

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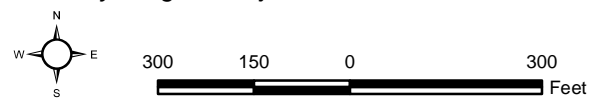
Project Boundary

Aerial Source: Esri, Maxar 201

Aerial Location Map

Gateway Heights Project

Figure 2



(Rev: 07/01/2021 MMD) R:\Projects\3Z\HE\010100



Photo 1: View of the Project Site looking east from Morton Road.

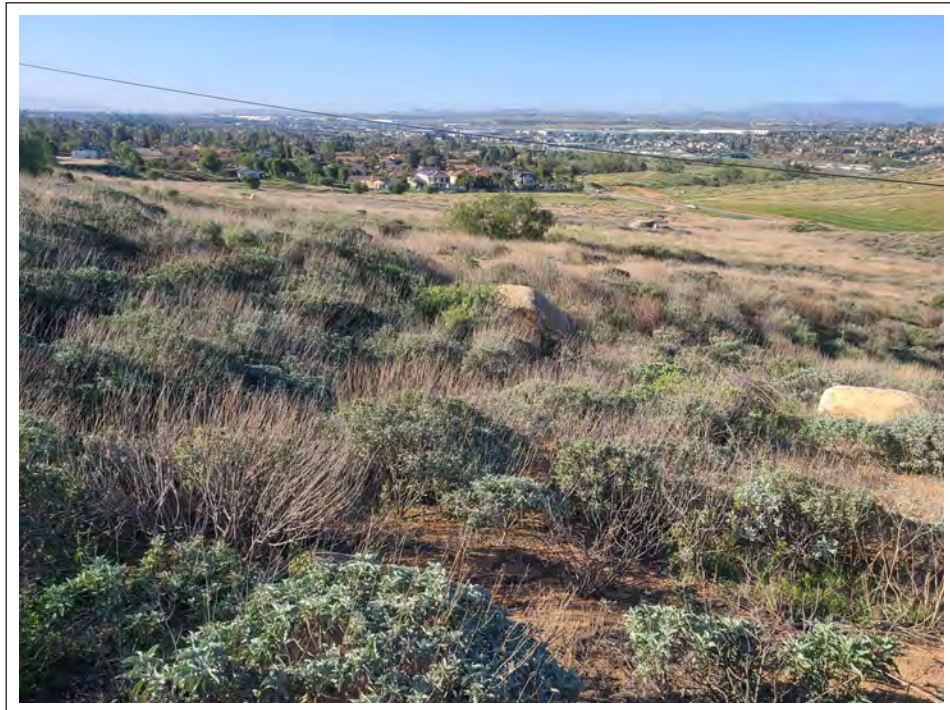


Photo 2: View looking south across the Project Site towards adjacent residential development.

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Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

Site Photographs

Gateway Heights Project

Figure 3



Dry Utilities

Electricity service is provided by Southern California Edison (SCE) via facilities within Morton Road that run up to and within Jennings Court. However, no existing electricity service is currently available north of the existing residential development.

Natural gas is provided to existing residential development south of the Project Site via an existing pipeline within Morton Road.

An existing 6-inch High Pressure Fuel Line owned by Santa Fe Pacific Pipeline is located on the easterly side of Morton Road.

Also, existing utility poles and overhead lines are located within the Project Site; however, these utilities are not located within an existing easement. These facilities are east of the Project's proposed development area and would not be affected.

Wet Utilities

An existing 12-inch Polyvinyl chloride (PVC) water line and 8-inch sewer line are located within Morton Road that serves the existing residential development south of the Project Site. Stubs for water and sewer are present for future connections to existing utilities, in order to provide water and sewer services for the proposed development on the Project Site.

Storm Drain Facilities

There are no existing storm drains within or adjacent to the Project Site. Stormwater flows from the Project Site along natural drainage courses. The project will require the installation of new storm drain facilities across Morton Road to transfer sheet flows southwesterly of the Project Site.

Project Description

The Project involves the construction of 108 detached townhouse condominium units on southwesterly 16.59 acres of the 32.56-acre Project Site, which is located in the western portion of the City of Moreno Valley, Riverside County, California. The 108 units would be organized using a 4-unit to 10-unit "clusters" on a total of 13 development pads. These clustered units would be arranged with garages facing a common driveway to enhance the aesthetic views of the project from the street and perimeter. Each unit would have an attached two-car garage, and units would range from 1,400 to 1,602 square feet of interior floor area. The 16.59 acres of the Project Site that would be developed would be rezoned to Residential 10 District (R10), which allows a maximum density of 10 dwelling units per net acre. The primary purpose of the R10 district is to provide for a variety of residential products and to encourage innovation in housing types with enhanced amenities such as common open space and recreation areas. This district has the lowest density of all the multiple family residential districts in the City, and is needed in order to allow a townhouse condominium subdivision, as proposed for the Project. The remaining 15.97 acres of the Project Site would be rezoned to Open Space (OS) and dedicated as conservation land. Project improvements are depicted in Figures 4 and 5, the Project's Site Plan and Grading Plan.

The entire Project Site will utilize the PUD (Planned Unit Development) provisions of the Moreno Valley Zoning Code, in order to allow greater innovation in housing development and diversity of housing choices, preserve a significant open space/hillside feature of the Project Site, create significant useable common open space amenities, and allow flexibility in the typical R10 development standards to accommodate the Project amenities. A conditional use permit must be obtained in order to use the PUD regulations.

Open Space

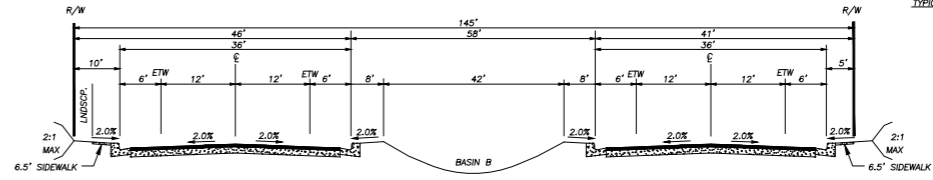
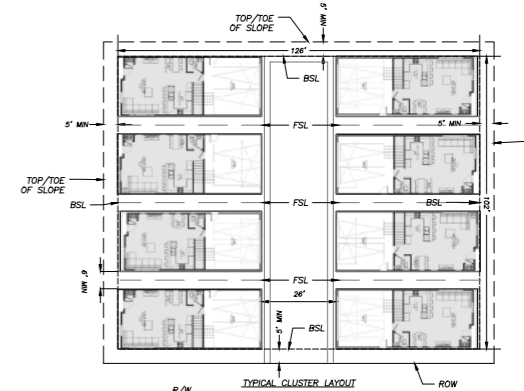
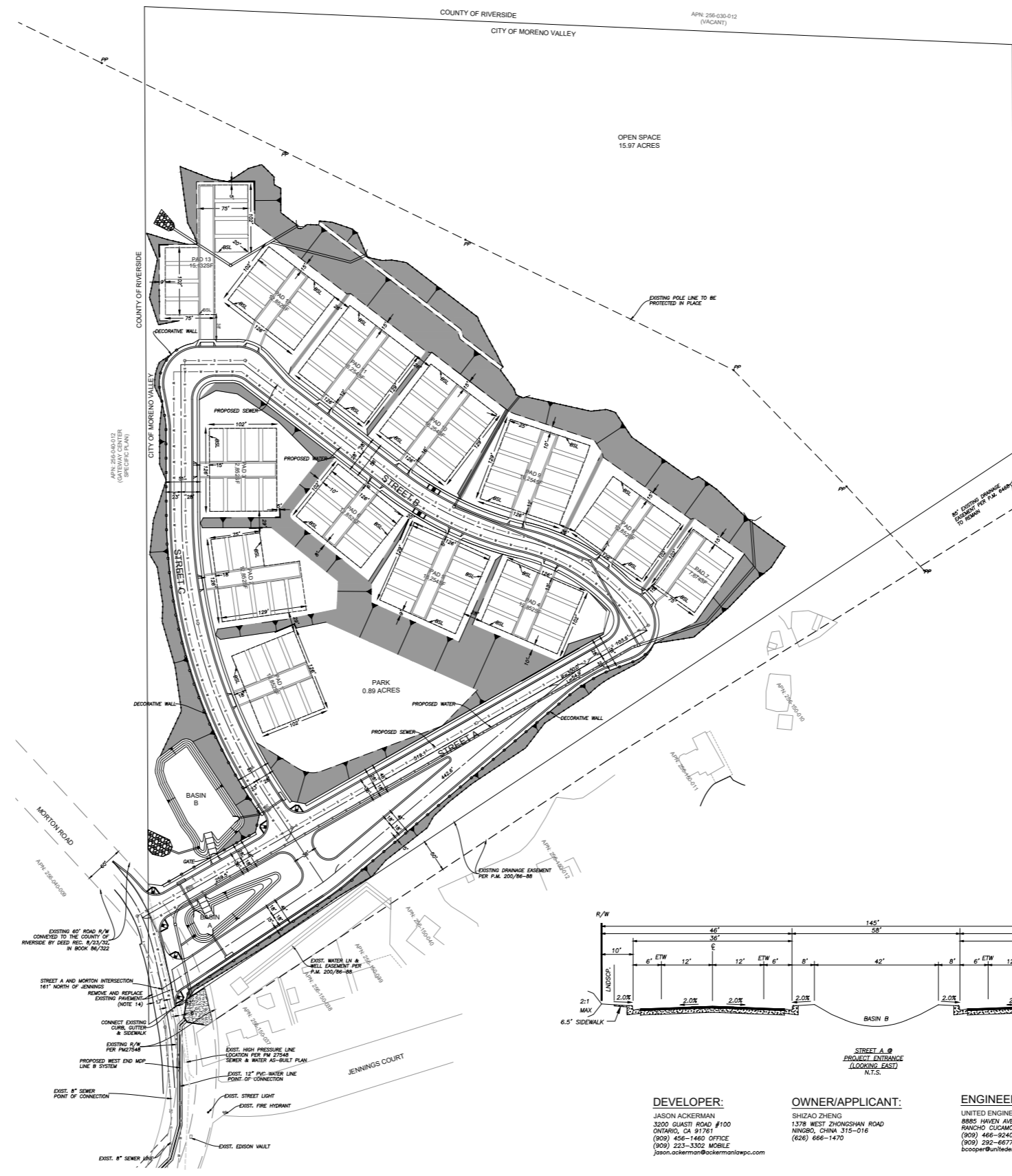
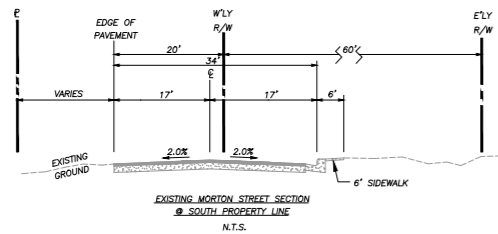
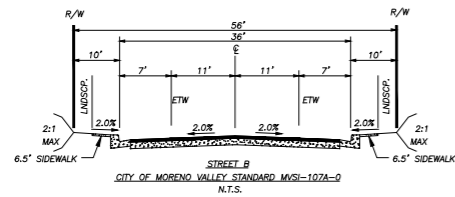
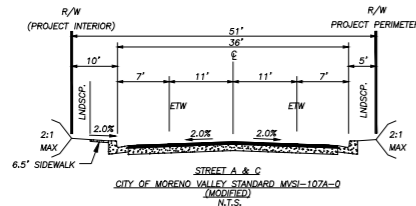
The Project includes a total of 3.1 acres of common open space, including trails and a 0.89 acre community park area at the center of the development. Also, as noted above, 15.97 acres of the Project Site would be rezoned to OS (Open Space) and would be dedicated as conservation land.

UTILITY PURVEYORS:

WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA. 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA. 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA. 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA. 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25634 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7500		

LEGEND

FF	FINISHED FLOOR
FL	FLOW LINE
R/W	RIGHT-OF-WAY
BSL	BUILDING SETBACK LINE
FSL	FIRE SEPARATION LINE
---	PROPOSED SEWER LINE
---	PROPOSED WATER LINE
---	EXISTING SEWER LINE
---	EXISTING WATER LINE
---	DEVELOPMENT LIMITS
---	PROJECT BOUNDARY
---	CENTERLINE
---	EXISTING DIRT ROAD
TP	POWER POLE
---	OVERHEAD POWER LINE
---	FUEL MODIFICATION ZONE
---	DECORATIVE WALL



DEVELOPER:
JASON ACKERMAN
3200 GUASTI ROAD #100
ONTARIO, CA 91761
(909) 456-1460 OFFICE
(909) 223-3302 MOBILE
jason.ackerman@ackermanlawpc.com

OWNER/APPLICANT:
SHIZAO ZHENG
1378 WEST ZHONGSHAN ROAD
NINGBO, CHINA 315-016
(628) 666-1470

ENGINEER/PLAN PREPARER:
UNITED ENGINEERING GROUP CA, INC
8885 HAVEN AVENUE, SUITE 195
RANCHO CUCAMORNIA, CA 91730
(909) 466-9240 #203 OFFICE
(909) 292-6677 MOBILE
lucopier@unitedeng.com

Source: United Engineering Group, 2022

Site Plan
Gateway Heights Project

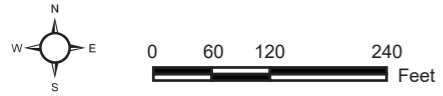
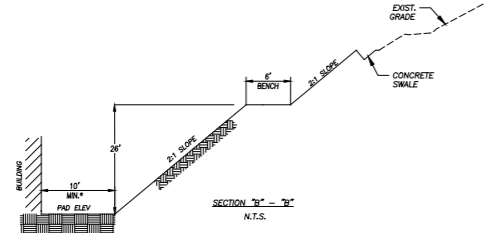
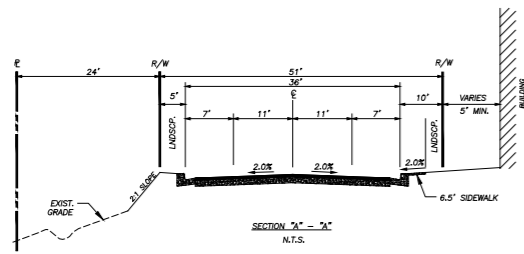


Figure 4

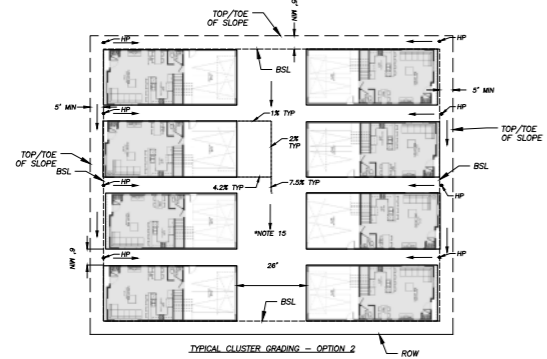
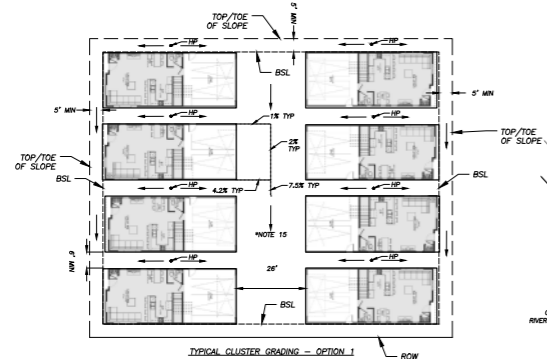
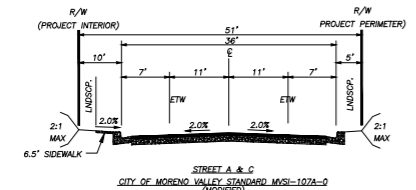
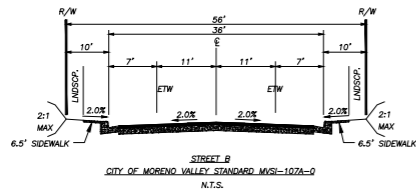


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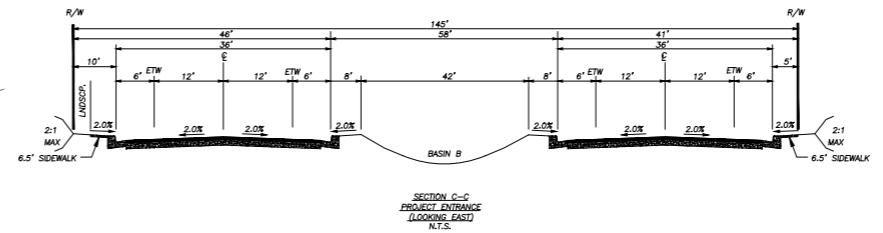
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* MINIMUM SETBACKS PER CALIFORNIA BUILDING CODE 1808.7:
- TOE OF SLOPE = AT LEAST THE SMALLER OF 1/2 OR 15'
- TOP OF SLOPE = AT LEAST THE SMALLER OF 1/3 OR 40'



PROJECT DISTURBANCE:
GROSS SITE AREA: 32.80 AC
NET SITE AREA (AREA OF DISTURBANCE): 15.43 AC
TOTAL IMPERVIOUS SURFACE AREA: 10.03 AC



Source: United Engineering Group, 2022

Grading Plan

Gateway Heights Project

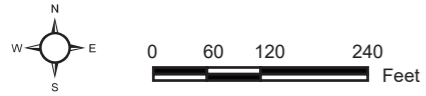


Figure 5



(12/22/2022 MMD) R:\Projects\ZHE\3ZHE10100\Graphics\ISMND\lex_GradingPlan.pdf

Access, Circulation, and Parking

The Project's residential units would be accessible from a single access point on Morton Road, to be constructed as a full-access, four-lane roadway with curbs, shoulders, a landscaped center median, and a sidewalk on the east side. Three internal roads, Streets A, B, and C would serve as a two-way loop through the residential development. The Project's main entry roads, Streets A and C, would have 6-foot-wide sidewalks on one interior side of each road, connecting to the internal sidewalk system for the development and connecting to the new Morton Road sidewalks along the property frontage and connecting to the existing sidewalk along Morton Road south of the Project Site. Street B within the development would have sidewalks on both sides of the road. Each dwelling unit would have an attached two-car garage for a total of 216 garage parking spaces. The Project also includes the street widening of Morton Road and improvements of the easterly half of Morton Road, which are partially located within Unincorporated Riverside County, and as shown in Figure 4, generally from north of Jennings Court to the County boundary just north of the Project's proposed driveway.

Lighting and Signage

The Project would include low-level interior lighting associated with the residential units as well as outdoor lighting associated with the park and public streets.

Any new street lighting within the public right-of-way would comply with applicable City regulations and would be subject to City approval in order to maintain appropriate and safe lighting levels on both sidewalks and roadways, while minimizing light and glare on adjacent properties.

Drainage and Stormwater

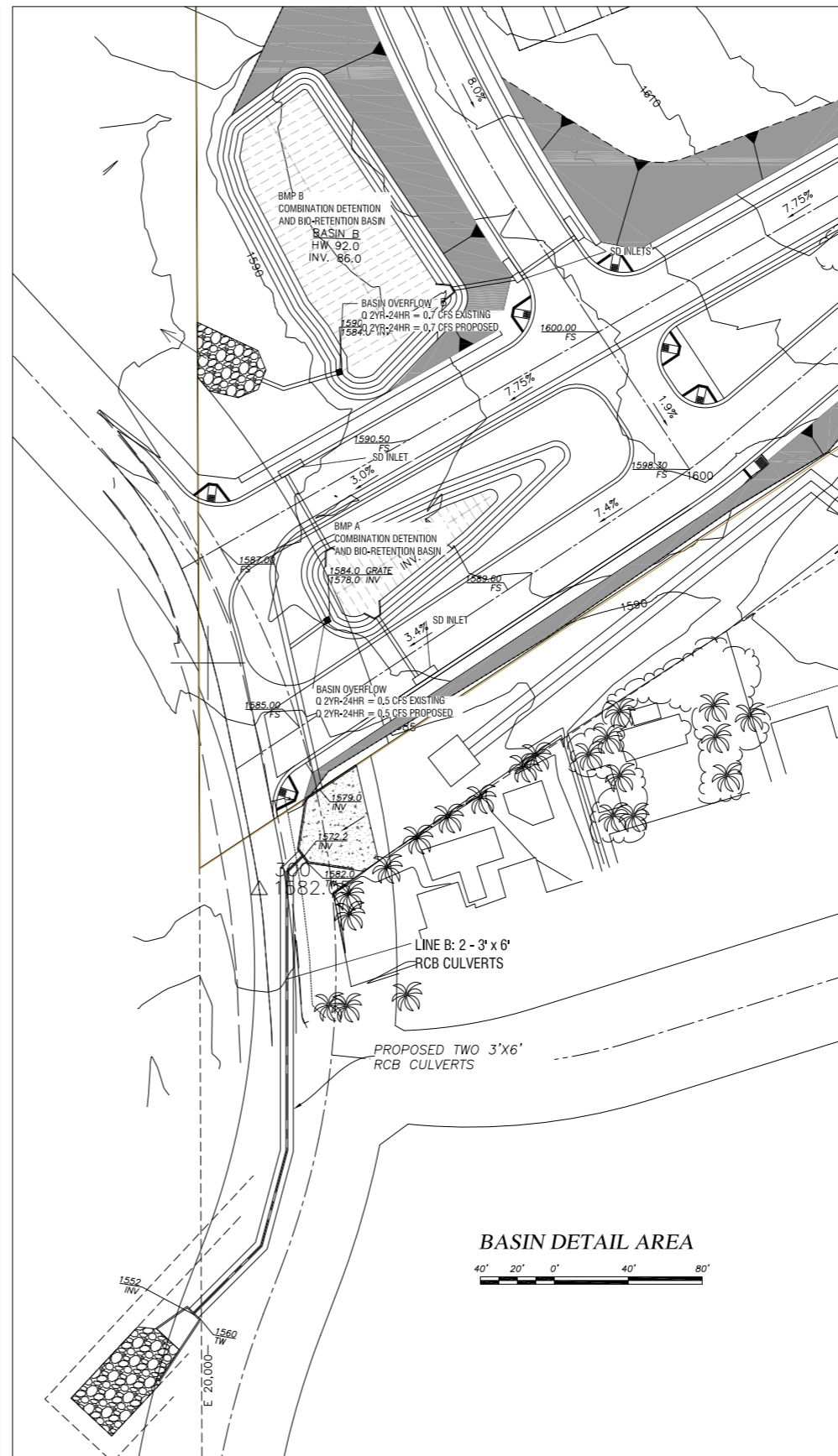
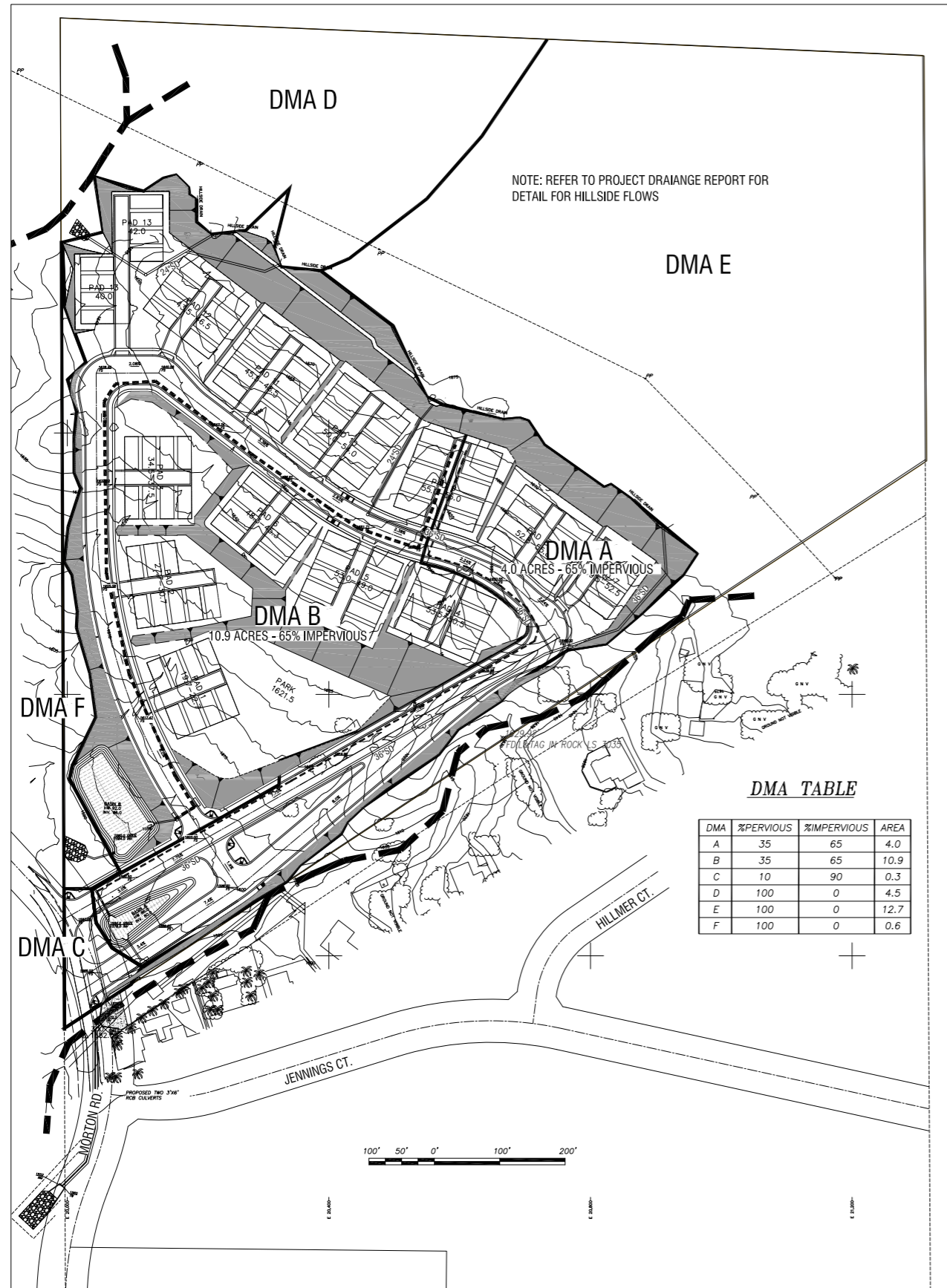
The Project includes the installation of hillside drainage, inlets, and storm drain lines to intercept and convey stormwater either along existing flow paths or to the Project's two combination detention and bioretention basins (e.g., Basins A and B). For the offsite, hillside runoff, the project is proposing three storm drain collection points. Point 502 is along the northern edge, is 7.8 cfs, and will be carried by a 24" pipe through the project, continuing westerly along the existing flow path. The other two, points 403, and 304, are 26.7 cfs, and 90.6 cfs, respectively. 403 will be carried by a proposed 24" pipe and connected to a proposed 36" pipe that carries the flow from point 304. That proposed storm drain system also connects to the historic flow path. At time of final design, additional design including HGL will be required. The project is adjacent to the proposed MDP Line B crossing, which is just south of the projects entrance, but is offsite. The project has been designed to route the hillside flows through the project via a proposed 36" pipe, then outlet to the Line B system. The project proposes to build the Line B Crossing. Two (2) 3' x 6' RCB culverts will be built under Morton Road. From there flows will outlet within an existing channel that carries the regional flows and mimicking the existing conditions just south of the project.

Regarding onsite runoff, the project has incorporated drainage systems and combination bio retention and detention basins that would be of sufficient size to accept, clean, mitigate the increased runoff, and route the runoff from the site. Runoff will be routed to bio-retention basins throughout the project via storm drain inlets. The water quality basins will drain via underdrains into a storm drain system and eventually into the proposed Line B System. Detailed design of the basins, outlet structures, and any filter media would be prepared at final design (UEG 2022a). Project drainage and stormwater improvements are depicted in Figure 6, Preliminary BMP Site Plan from the Preliminary Water Quality Management Plan.

Utility Improvements

The Project would require the connection to existing utilities, and extension of service within the Project Site. These improvements are depicted in Figure 4, Site Plan and described in more detail below.

Water. Water is provided to the Project Site by the Eastern Municipal Water District. The Project includes trenching and installation of a water line to connect at two locations along the existing 12-inch PVC water line located within Morton Road near the intersection with Jennings Court and Penunuri Place, which serves the existing residential development south of the Project Site. EWMD would deliver water to the Project boundary where a master meter would be placed. All onsite distribution would be via a private water system,



LEGEND:

- CONTRIBUTORY AREA & DISTURBANCE AREA
- FLOW DIRECTION
- ONSITE FLOWPATH
- NODE/CONCENTRATION POINT
FLOWLINE ELEVATION
- DRAINAGE AREA & DETAILS
- 6" UNDERDRAINS
- 6" CLEANOUTS

- NOTES:
- ALTHOUGH MULTIPLE POINTS OF RUNOFF ARE PRESENT IN THE EXISTING CONDITION, DRAINAGE DIVERSION IS PROPOSED TO CONSOLIDATE OUTLETS ALONG THE WESTERN EDGE. ALL WASHES ALONG THE WESTERN EDGE JOIN IN A SINGLE STREAM DOWNSTREAM.
 - BASINS AS SHOWN AND WITH CONTROL STRUCTURES WILL BE DETAILED AT FINAL DESIGN TO ENSURE OUTLETS TO WEST AND SOUTH ARE MITIGATED TO DESIGN FLOWS.
 - 5' CONTOURS SHOWN FOR EASY VIEWING, HOWEVER 1' CONTOURS WERE OBTAINED AND USED FOR DESIGN.
 - REFER TO APPENDIX 6 FOR DESIGN DETAILS.
 - "ESM" OR ENGINEERED SOIL MIX TO BE DESIGNED AND CALCULATIONS CONFIRMED AT FWMP.
 - WATER QUALITY BASINS TO BE IRRIGATED AND LANDSCAPED PER RIVERSIDE COUNTY REQUIREMENTS.
 - OVERFLOW SET AT WATER QUALITY ELEVATION MAY BE USED TO DISCHARGE FLOOD STORAGE VOLUME ABOVE WATER QUALITY VOLUME AT TIME OF FINAL DESIGN.

Source: United Engineering Group, 2022

Preliminary BMP Exhibit
 Gateway Heights Project

Figure 6



connecting via laterals along the interior public streets to the various home clusters, and maintained by the Homeowners Association.

Sewer. Sewer collection and treatment for the Project Site is provided by the Eastern Municipal Water District. The Project would construct a sewer line to connect to the existing 8-inch sewer line which is located within Morton Road near the intersection with Jennings Court, which serves the existing residential development south of the Project Site.

Gas. Gas service is provided to the Project Site by Southern California Gas Company. An existing gas line is located within Morton Road, which the Project would connect to for gas service. Similar to wet utilities, gas service would be connected via a trench and new gas pipe.

Electricity. Electricity for the Project would be supplied by Southern California Edison (SCE). The Project would connect to existing electrical infrastructure within the Morton Road right-of-way.

Cable and Internet. Cable and internet is provided to the Project Site by Spectrum which has existing facilities in Morton Road south of the Project Site. The Project would connect to these facilities via a trench within Morton Road south of the Project Site.

Fuel Modification Zones

The Project includes the establishment and ongoing maintenance of 100-foot-wide fuel modification zones for most units. For two buildings where the 100-foot-wide fuel modification zones may not be feasible, alternative on-site “hardening” techniques are proposed. Specifically, wherever less than 100 feet of FMZ (on and off site combined) is achievable, a 6 foot tall, masonry wall will be constructed at the property line in lieu of the additional FMZ. The Project would comply with the requirements of Section 8.36.050 of the Moreno Valley Municipal Code and other applicable requirements, which require the preparation, approval, and ongoing implementation of a fuel modification plan for the Project. Review and approval of preliminary and final fuel modification plans by the Fire Code Official will occur prior to the issuance of grading permits and recordation of subdivision maps. A Fire Hazard Analysis and Approach memorandum was prepared for the Project in October 2022 by Dudek, which documents the fire protection planning that has occurred for the Project to date and is included as Appendix L. Specifically, Attachment 2 of Appendix L includes the Proposed Project Fuel Modification Plan, which shows the limits of proposed fuel modification activities.

Anticipated Construction Schedule

Site preparation and grading of the entire Project Site would occur in one phase, which would be followed by construction of residential clusters beginning every 24 to 30 months, or consistent with the sales absorption of the prior units. As noted above, the Project includes a total of thirteen residential clusters. Construction is anticipated to commence in 2022, pending Project approval. For the purposes of the Traffic Impact Analysis (Appendix K), it was assumed that the Project would be fully constructed by 2023. The following construction durations are anticipated.

- Site preparation – 2 weeks
- Grading/excavation – 12 months
- Building construction – 12 months for each cluster
- Paving – 2 weeks for each cluster

Project grading would involve a cut volume of 90,148 cubic yards (cy) and fill volume of 56,011 cy, and require the export of approximately 34,137 cy of soil from the Project Site, as shown in Figure 5, Grading Plan. No import is needed.

Offsite Improvements

As noted above, the extension of sewer, water, gas, and telecommunication facilities would be required within the Morton Road right of-way from the intersection of Morton Road and Jennings Court to the location where the proposed Project’s access road intersects with Morton Road.

14. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Note: Conducting consultation early in the California Environmental Quality Act (CEQA) process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

Consultation under Assembly Bill 52 (AB 52) and Senate Bill 18 (SB 18) began on January 20, 2022 with letters being sent to the following tribes:

- Agua Caliente Band of Cahuilla Indians;
- Cahuilla Band of Indians;
- Torres-Martinez Desert Cahuilla Indians;
- Los Coyotes Band of Cahuilla Mission Indians;
- Morongo Band of Mission Indians;
- Pechanga Band of Luiseño Indians;
- Rincon Band of Luiseño Indians;
- San Manuel Band of Mission Indians;
- Santa Rosa Band of Mission Indians; and
- Soboba Band of Luiseño Indians.

The 90-day response period ended on April 19, 2022. Of the ten tribes contacted, two tribes requested to consult during the consultation process which included: Pechanga Band of Luiseño Indians and Rincon Band of Luiseño Indians. Additionally, the City received a request from Agua Caliente Band of Cahuilla Indians for Project documents but no formal request to consult.

15. Required Discretionary Approvals from the City of Moreno Valley:

- A General Plan Amendment to amend the City of Moreno Valley General Plan Land Use Map to change the land use designation for the Project Site from "Residential 2 (R2)" and "Hillside Residential (HR)" to "Residential 10 (R10)" and "Open Space (OS)" designations.
- A Change of Zone to amend the City of Moreno Valley Zoning Map to change the zoning designation for the Project Site from "Residential 2 (R2) District" and "Hillside Residential (HR)" to "Residential 10 (R10)" and "Open Space (OS) zones.
- A Tentative Tract Map (TTM 38459) to subdivide the Project Site in accordance with the Project Site Plan (Figure 4).
- A conditional use permit in order to use the PUD regulations.

16. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

- California Department of Fish and Wildlife (CDFW)
- County of Riverside;
- US Army Corps of Engineers (USACE);

- Santa Ana Regional Water Quality Control Board (RWQCB); and
- Western Riverside County Regional Conservation Authority (RCA).

17. Acronyms:

µg/m ³	micrograms per cubic meter
AAM	Annual Arithmetic Mean
AAQS	Ambient Air Quality Standards
AICUZ	Air Installation Compatible Use Zone
ALUC	Airport Land Use Commission
amsl	above mean sea level
APN	Tax Assessor Parcel Number
AQMP	Air Quality Management Plan
Basin Plan	Water Quality Control Plan for the Santa Ana River Basin
BMPs	Best Management Practices
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH ₄	methane
CIWMP	Countywide Integrated Waste Management Plan
CNEL	community noise equivalent level
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	Carbon dioxide equivalent
CO	carbon monoxide
CRPR	California Rare Plant Rank
CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibel scale
DBESP	Determination of Biologically Equivalent or Superior Preservation
diesel PM	diesel particulate matter
DIF	Development Impact Fee
DOC	Department of Conservation
DTSC	Department of Toxic Substances Control
EDR	EDR Radius Map
EIC	Eastern Information Center
EIR	Environmental Impact Report
EMFAC	EMissions FACTor
EMWD	Eastern Municipal Water District

FHSZ	Fire Hazard Severity Zone
FTA	Federal Transit Administration
FUDS	Formerly Used Defense Site
GHG	greenhouse gases
GPCD	Gallons per Capita per Day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWP	global warming potential
HFCs	hydrofluorocarbons
HR	Hillside Residential
I	Interchange
in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
kBTU	kilo-British thermal units
km	kilometer
kWh	kilowatt hour; yr: year
lbs/day	pounds per day
L _{eq}	equivalent noise level
L _{eq(3)}	equivalent noise level 3-hour average
LOS	level of service
LRA	Local Responsibility Area
LST	localized significance threshold
MBTA	Migratory Bird Treaty Act
Mills	Henry J. Mills
mg/m ³	milligrams per cubic meter
MSHCP	Multiple Species Habitat Conservation Plan
MT/yr CO ₂ e	metric tons per year of carbon dioxide equivalents
MVPD	Moreno Valley Police Department
MVU	Moreno Valley Utility
NAHC	Native American Heritage Commission
NO ₂	nitrogen dioxide
N ₂ O	nitrous oxide
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O ₃	ozone
OS	Open Space
PFCs	perfluorocarbons
PM10	respirable particulate matter with a diameter of 10 microns or less
PM2.5	fine particulate matter with a diameter of 2.5 microns or less
ppm	parts per million
ppv	peak particle velocity
PUD	Planned Unit Development
PVC	Polyvinyl chloride
R10	Residential 10
R2	Residential 2
RCA	Regional Conservation Authority
RHNA	Regional Housing Needs Assessment
rms	root mean square

RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
RWRF	regional water reclamation facility
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SF ₆	sulfur hexafluoride
Skinner	Robert A. Skinner
SO ₂	sulfur dioxide
SoCAB	South Coast Air Basin
SO _x	sulfur oxides
SR	State Route
SRA	State Responsibility Area
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TAZ	Transportation Analysis Zone
TIA	traffic impact analysis
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UWMP	Urban Water Management Plan
VMT	vehicle miles traveled
VOC	volatile organic compound
WRCOG	Western Riverside Council of Governments

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture & Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology & Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input type="checkbox"/> Hydrology & Water Quality | <input type="checkbox"/> Land Use & Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population & Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities & Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION (To be completed by the Lead Agency):

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Luis Lopez
Signature

1/23/23
Date

Luis Lopez
Printed Name

City of Moreno Valley
Lead Agency

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
- 4) "Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The Lead Agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or another CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analyses Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources. A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Except as provided in Public Resources Code §21099 – Modernization of Transportation Analysis for Transit-Oriented Infill Projects – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. A scenic vista is generally defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. A substantial adverse effect to a scenic vista is one that degrades the view from a designated viewing location. Most of the City of Moreno Valley is located on a relatively flat valley floor surrounded by rugged hills and mountains. The topography of the City is defined by the Box Springs Mountains and the Reche Canyon area to the north, the “Badlands” to the east, and the Mount Russell area to the south, which are identified by the City as scenic vistas (Moreno Valley 2021b).

The Project Site is located within the Box Springs Mountains, which are identified by the City as a major scenic resource as well as a scenic vista (Moreno Valley 2021c). Specifically, the City has identified the Box Springs Mountains as containing numerous rock outcroppings and boulders that add visual character to these landforms (Moreno Valley 2021b).

The Project’s design minimizes aesthetic impacts by developing the lower elevations of the Project Site which contain less topography and hillside terrain, and preserving the upper (steep hillside topography) elevations. As noted in the Project Description, a total of 15.97 acres of the Project Site would be rezoned to Open Space (OS) and dedicated as conservation land. These areas to be set aside for preservation are the most visible portions of the Project Site from Morton Road near the Project entrance, and also contain the majority of sizeable rocks and boulders that the City has identified as desirable components of the area’s visual character. Although the Project would convert a portion of the Project Site to residential uses, the area proposed for development would be located in the western portion of the Project Site in the lower elevation area, and the Project would preserve the natural foothills located in the eastern portion of the Project Site. Additionally, the proposed residential units would be two stories in height and would not exceed 30-feet in height due to the sloping terrain and would be similar in appearance and massing to existing residential uses located to the southeast. Therefore, although the Project would partially obstruct views from local public viewpoints, impacts would be minimized through Project design and siting. Additionally, views from local roadways including Morton Road, as well as from SR-60 and I-215 are temporary due to the transitory nature of drivers. The Project would not substantially damage any scenic resources. The Project would result in less than significant impacts and no mitigation is required.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. The Project is not located along or near a State scenic highway. There are no State Scenic Highways in Moreno Valley as defined by the California Department of Transportation (Caltrans 2021). However, Gilman Springs Road, Moreno Beach Drive, and State Route 60 (SR-60) are designated as local scenic roads in the City’s General Plan (Moreno Valley 2021b). Also, the Reche Canyon/Badlands Area Plan of Riverside County’s General Plan contains several County-Designated or County-Eligible scenic roadways including San Timoteo Canyon Road, Redlands Boulevard, Gilman Springs Road, and SR-60 (County of Riverside 2011).

The Project would not be visible from any of these roadways, with the exception of SR-60, which offers minor, intermittent views of the Project Site, which would be marginally altered by the Project. As discussed

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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above under threshold I(b), the Project has avoided upper elevations of the Project Site that are most visible from Morton Road and other local public roads and viewpoints. Instead, the Project includes development of structures within the lower western portions of the Project Site. The new structures would be consistent in height and appearance (e.g., building materials) for viewers from adjacent public viewpoints, and would appear as an extension of existing suburban development that occurs to the south of the Project Site. Given there are no state scenic highways in the vicinity, no impact would result and no mitigation is required.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project Site is located in an urbanized area as defined in Section 15191 of the State CEQA Guidelines , so this response focuses on whether the Project would substantially degrade the existing visual character or quality of public views of the Project Site and its surroundings. The primary publicly accessible vantage points of the Project Site and its surroundings are from Morton Road, which is immediately west of the Project Site. Views of the Project Site from Morton Road are shown in Figure 3, Site Photographs. Visible features in the foreground from this viewpoint include the lower elevation portion of the Project Site, represented as a flat, previously-disturbed property with dirt trails. This foreground area comprises the primary development area associated with the Project. The Project Site’s higher elevations as well as a portion of the Box Springs Mountains, including rock outcroppings and native vegetation, are visible in the background. This area visible in the background comprises the portion of the site to be set aside for preservation and off-site areas to the northeast. Also, as discussed above SR-60 offers minor, intermittent views of the Project Site, which would be marginally altered by the Project. The Project’s addition of residential structures and new roads on the hillside would result in a minor visual encroachment on public views of the hillside. The Project has been designed to be visually compatible with adjacent residential development, including features such as similar building heights, massing, and colors and materials including tile roofs. Also, as noted above, the Project’s design minimizes aesthetic impacts by developing the lower elevations of the Project Site and preserving the higher elevations in the northeastern 15.97 acres of the Project Site, which are most visible from surrounding vantage points. The Project would have less than significant impacts relative to this threshold and no mitigation is required.

d) Create a new source of substantial light or glare which will adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project would include low-level interior lighting associated with the residential units as well as outdoor lighting associated with the park and public streets. All lighting fixtures shall be appropriate in scale, intensity, and height for the Project. Consistent with City requirements (e.g., Section 9.16.280), exterior lighting would be hooded and arranged to reflect away from adjoining properties and streets. Regulatory requirement **RR AES-1** requires the development of a lighting plan for the Project, which would ensure that lighting impacts would be less than significant.

Glare is caused by light reflections from pavement, vehicles, and building materials (e.g., reflective glass and polished surfaces). During daylight hours, the amount of glare depends on intensity and direction of sunlight. Glare can create hazards to motorists and nuisances for pedestrians and other viewers. The

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Project would be constructed using exterior materials and finishes that are common for residential structures and are not highly-reflective. Furthermore, as discussed above, Project light fixtures would be directed downward and shielded or recessed in such a manner so that light trespass is minimized and light from the Project is not perceptible at or beyond the property line. The Project does not include any uses that would have the potential to create noticeable glare from sunlight, vehicle lights, or outdoor lighting which have the potential to pose a hazard to motorists traveling in the Project vicinity or that would affect surrounding uses. Therefore, less than significant impacts would occur, and no mitigation is required.

Mitigation Program:

Regulatory Requirement:

RR AES-1 The Developer shall prepare a Lighting Plan that provides the type and location of proposed exterior lighting and signage, subject to the review and approval of the City's Development Services Department. All new lighting shall be shielded and down-cast, such that the light is not cast onto adjacent properties or visible from above.

II. AGRICULTURE AND FOREST RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest protocols adopted by the California Air Resources Board.

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. The Project Site does not contain land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance according to the California Department of Conservation, California Important Farmland Finder, which identifies the Project Site as "Other Lands" (DOC 2021). Therefore, the Project would have no impact.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. The Project Site is not zoned for agricultural use (Moreno Valley 2020b). Furthermore, no land within the City is currently under a Williamson Act contract (Moreno Valley 2019). Therefore, the Project would have no impact upon agricultural zoning or agricultural conservation, and no mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Response:

No Impact. Generally, in southern California, including Riverside County and the City of Moreno Valley, climate and topography limit the types and locations of forest lands and their potential for commercial or industrial timber utilization. Accordingly, there is no existing or currently proposed zoning of forest land, timberland, or Timberland Production Zones within the City. Also, figures released by the State of California indicate that no “California forest land” ownership, either public or private, is mapped for Riverside County including the City. Finally, the Project Site does not contained forest land as defined in Public Resources Code Section 12220(g) since it does not support 10-percent native tree cover. Therefore, the Project would not conflict with the existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production and the Project would have no impact, directly, indirectly, or cumulatively to forest land (Moreno Valley 2019).

d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. There is no commercial forestry or timber production industry within the City other than Christmas tree farms or nursery stock production (that is, cultivated, rather than wild-harvested). Therefore, the Project would not result in the loss of forest land or the conversion of forest land to non-forest use and the Project would have no impact, directly, indirectly, or cumulatively to the loss of forest land or conversion of forest land to a non-forest use (Moreno Valley 2019). Therefore, no impact would result related to this threshold and no mitigation is required.

e) Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. As discussed above related to thresholds II (a) and (b), the Project is not zoned for or currently used for agricultural purposes. As discussed related to thresholds II (d) and (e), there is no commercial forestry or timber production industry within the City. Therefore, the Project would not result in the loss of forest land or the conversion of forest land to non-forest use, and the Project would have no impact directly, indirectly, or cumulatively (Moreno Valley 2019). No impact would result related to this threshold and no mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. **Would the project:**

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Environmental Setting

The Project Site is located within the South Coast Air Basin (SoCAB) and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SoCAB is a 6,600-square-mile area bound by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. The SoCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

Both the U.S. Environmental Protection Agency (USEPA) and the State of California have established health-based Ambient Air Quality Standards (AAQS) for air pollutants, which are known as “criteria pollutants”. The AAQS are designed to protect the health and welfare of the populace within a reasonable margin of safety. The federal criteria pollutants are ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter with a diameter of 10 microns or less (PM₁₀), fine particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), and lead.

The State of California Air Resources Board (CARB) has established standards for the federal criteria pollutants that are generally more restrictive than the national AAQS, and additional standards for atmospheric sulfates, vinyl chloride, hydrogen sulfide, and visibility. National and state AAQS are shown in Table 1.

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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**TABLE 1
CALIFORNIA AND FEDERAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary ^a	Secondary ^b
O ₃	1 Hour	0.09 ppm (180 µg/m ³)	—	—
	8 Hour	0.070 ppm (137 µg/m ³)	0.070 ppm (137 µg/m ³)	Same as Primary
PM ₁₀	24 Hour	50 µg/m ³	150 µg/m ³	Same as Primary
	AAM	20 µg/m ³	—	Same as Primary
PM _{2.5}	24 Hour	—	35 µg/m ³	Same as Primary
	AAM	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
CO	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	—
	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	—
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)	—	—
NO ₂	AAM	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	Same as Primary
	1 Hour	0.18 ppm (339 µg/m ³)	0.100 ppm (188 µg/m ³)	—
SO ₂	24 Hour	0.04 ppm (105 µg/m ³)	—	—
	3 Hour	—	—	0.5 ppm (1,300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)	—
Lead	30-day Avg.	1.5 µg/m ³	—	—
	Calendar Quarter	—	1.5 µg/m ³	Same as Primary
	Rolling 3-month Avg.	—	0.15 µg/m ³	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	
Sulfates	24 Hour	25 µg/m ³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m ³)		

O₃: ozone; ppm: parts per million; µg/m³: micrograms per cubic meter; PM₁₀: respirable particulate matter 10 microns or less in diameter; AAM: Annual Arithmetic Mean; —: No Standard; PM_{2.5}: fine particulate matter 2.5 microns or less in diameter; CO: carbon monoxide; mg/m³: milligrams per cubic meter; NO₂: nitrogen dioxide; SO₂: sulfur dioxide; km: kilometer.

^a *National Primary Standards*: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

^b *National Secondary Standards*: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Note: More detailed information in the data presented in this table can be found at the CARB website (www.arb.ca.gov).

Source: CARB 2016

Regional air quality is defined by whether the area has attained or not attained State and federal air quality standards, as determined by air quality data from various monitoring stations. Areas that are considered in “nonattainment” are required to prepare plans and implement measures that will bring the region into “attainment”. When an area has been reclassified from nonattainment to attainment for a federal standard, the status is identified as “maintenance”, and there must be a plan and measures established that will keep the region in attainment for the following ten years. Table 2 summarizes the attainment status of the SoCAB for the criteria pollutants.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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**TABLE 2
CRITERIA POLLUTANT DESIGNATIONS
IN THE SOUTH COAST AIR BASIN**

Pollutant	State	Federal
O ₃ (1-hour)	Nonattainment	Nonattainment
O ₃ (8-hour)		Extreme Nonattainment
PM10	Nonattainment	Attainment/Maintenance
PM2.5	Nonattainment	Moderate Nonattainment
CO	Attainment	Attainment/Maintenance
NO ₂	Attainment	Attainment/Maintenance
SO ₂	Attainment	Attainment
Lead	Attainment	Nonattainment/Attainment ^a
Visibility-Reducing Particles	Unclassified ^b	No Standards
Sulfates	Attainment	
Hydrogen Sulfide	Unclassified	
O ₃ : ozone; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; CO: carbon monoxide; NO ₂ : nitrogen dioxide; SO ₂ : sulfur dioxide; CARB: California Air Resources Board; SoCAB: South Coast Air Basin ^a Los Angeles County is classified as nonattainment for lead; the remainder of the SoCAB is in attainment of State and federal standards. ^b "Unclassified" designation indicates that the air quality data for the area are incomplete and do not support a designation of attainment or nonattainment. Source: CARB 2018, USEPA 2020.		

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness or that may pose a present or potential hazard to human health. TACs may be emitted from a variety of common sources, including motor vehicles, gasoline stations, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different than the "criteria" pollutants previously discussed in that AAQS have not been established for them. TACs occurring at extremely low levels may still affect health, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts on human health are described by having carcinogenic risk and being chronic (i.e., of long duration) or acute (i.e., severe but of short duration). Diesel particulate matter (diesel PM) is a TAC and is responsible for the majority of California's known cancer risk from outdoor air pollutants.

The effects from air pollution can be significant, both in the short-term during smog alerts, but also from long-term exposure to pollutants. While the majority of the populace can overcome short-term air quality health concerns, selected segments of the population are more vulnerable to its effects. Specifically, young children, the elderly, and persons with existing health problems are most susceptible to respirator complications.

Air quality data for the Project Site is represented by the Perris Valley monitoring station. Pollutants measured at this monitoring station include O₃, and PM10. The monitoring data presented in Table 3, Air Quality Levels Measured at the Perris Valley Monitoring Stations, include maximum pollutant levels and exceedances of federal and State air quality standards for the years 2017–2019.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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**TABLE 3
AIR QUALITY LEVELS MEASURED AT THE
PERRIS VALLEY MONITORING STATION**

Pollutant	California Standard	National Standard	Year	Max. Level ^a	Days State Standard Exceeded	Days National Standard Exceeded
O ₃ (1 hour)	0.09 ppm	None	2017	0.12	33	N/A
			2018	0.117	31	N/A
			2019	0.118	26	N/A
O ₃ (8 hour)	0.070 ppm	0.070 ppm	2017	0.105	80	80
			2018	0.103	67	67
			2019	0.095	64	64
PM10 (24 hour)	50 µg/m ³	150 µg/m ³	2017	75	11 (19%)	0
			2018	64	3 (5%)	0
			2019	97	4 (7%)	0
PM2.5 (24 Hour)	None	35 µg/m ³	2017	–	NA	–
			2018	–	NA	–
			2019	–	NA	–
NO ₂ (1 hour)	0.18 ppm	0.100 ppm	2017	–	–	–
			2018	–	–	–
			2019	–	–	–
–: O ₃ : ozone; ppm: parts per million; PM10: respirable particulate matter with a diameter of 10 microns or less; µg/m ³ : micrograms per cubic meter; –: Data Not Reported or insufficient data available to determine the value; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; N/A indicates that there is no applicable standard.						
^a Estimated days based on measurement every six days.						
Source: CARB 2021, SCAQMD 2021						

The SCAQMD defines a “sensitive receptor” as a land use or facility such as residences, schools, childcare centers, athletic facilities, playgrounds, retirement homes, and convalescent homes (SCAQMD 1993). The sensitive receptors nearest to the Project Site are single-family residences adjacent to the Project’s southern boundary.

Significance Criteria

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management district may be relied upon to make significance determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of Project-related air pollutant emissions; Table 4 presents the current significance thresholds.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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**TABLE 4
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
AIR QUALITY SIGNIFICANCE THRESHOLDS**

Mass Daily Thresholds ^a		
Pollutant	Construction	Operation
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
TACs, Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO ₂ e for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants ^{b, c}		
NO ₂ 1-hour average annual arithmetic mean	SCAQMD is in attainment; Project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (State) 0.03 ppm (State) and 0.0534 ppm (federal)	
PM10 24-hour average annual average	10.4 µg/m ³ (construction) ^c & 2.5 µg/m ³ (operation) 1.0 µg/m ³	
PM2.5 24-hour average	10.4 µg/m ³ (construction) ^c & 2.5 µg/m ³ (operation)	
SO ₂ 1-hour average 24-hour average	0.25 ppm (State) & 0.075 ppm (federal – 99 th percentile) 0.04 ppm (State)	
Sulfate 24-hour average	25 µg/m ³ (State)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; Project is significant if it causes or contributes to an exceedance of the following attainment standards: 20.0 ppm (State) and 35 ppm (federal) 9.0 ppm (State/federal)	
Lead 30-day average Rolling 3-month average	1.5 µg/m ³ (State) 0.15 µg/m ³ (federal)	
<p>NOx: nitrogen oxides, lbs/day: pounds per day, VOC: volatile organic compound, PM10: respirable particulate matter with a diameter of 10 microns or less, PM2.5: fine particulate matter with a diameter of 2.5 microns or less, SOx: sulfur oxides, CO: carbon monoxide, TACs: toxic air contaminants, GHG: greenhouse gases, MT/yr CO₂e: metric tons per year of carbon dioxide equivalents, NO₂: nitrogen dioxide, ppm: parts per million, µg/m³: micrograms per cubic meter; SCAQMD: South Coast Air Quality Management District</p> <p>^a Source: South Coast AQMD CEQA Handbook (SCAQMD 1993)</p> <p>^b Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated</p> <p>^c Ambient air quality threshold is based on SCAQMD Rule 403</p> <p>Source: SCAQMD 2019</p>		

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Response:

No Impact. Air quality in Riverside County is regulated by the SCAQMD, which is the agency principally responsible for comprehensive air pollution control in the SoCAB. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs).

On March 3, 2017, the SCAQMD adopted the 2016 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, Southern California Association of Governments [SCAG], and USEPA). The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including SCAG’s 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS); emission inventory methodologies for various source categories; and SCAG’s growth forecasts (SCAG 2016). The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State air quality standards. The two principal criteria for conformance to an AQMP are:

1. Whether the project would result in an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards and
2. Whether the project would exceed the assumptions in the AQMP.

With respect to the first criterion, the analyses in under threshold III(b) below demonstrates that the Project would not (1) generate short-term or long-term emissions of volatile organic compounds (VOCs), nitrogen oxides (NOx), which are O₃ precursors, or PM_{2.5} that could potentially cause an increase in the frequency or severity of existing air quality violations; (2) cause or contribute to new violations; or (3) delay timely attainment of air quality standards.

With respect to the second criterion, the Project would result in an increase of approximately 319 persons. The addition of 319 residents within the City would not increase or modify SCAG’s population, housing, or employment projections (SCAG 2016). The Project would accommodate the projected growth in population accounted for in the 2016 AQMP emissions forecast and would provide additional wastewater storage capacity. Therefore, the Project would be consistent with the region’s AQMP. No impacts would occur, and no mitigation is required.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact.

Construction Emissions – Regional

Criteria pollutant emissions would occur during construction from operation of construction equipment; excavation and earth-moving activities, which would generate fugitive dust; import of soil; import of construction materials; VOC emissions from paving and painting; and operation of vehicles driven to and from the site by construction workers. Emissions would vary from day to day, depending on the level of

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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activity; the specific type of construction activity occurring; and, for fugitive dust, prevailing weather conditions.

A construction-period mass emissions inventory was compiled based on an estimate of construction equipment as well as scheduling and Project phasing assumptions. More specifically, the mass emissions analysis takes into account the following:

- Combustion emissions from operating onsite stationary and mobile construction equipment;
- Fugitive dust emissions from site preparation and soils remediation/grading phases;
- VOC emissions from asphalt paving and architectural coatings; and
- Mobile-source combustion emissions and fugitive dust from worker commute and truck travel.

The California Emissions Estimator Model (CalEEMod) version 2020.4.0 computer program is designed to model construction and operational emissions for land development projects and allows for the input of project- and County-specific information. CalEEMod has separate databases for specific counties and air districts, and the Riverside County database was used for the Project.

The mass emissions thresholds (see Table 4) are based on the rate of emissions (i.e., pounds of pollutants emitted per day). Therefore, the quantity, duration, and the intensity of construction activity are important in ensuring the analysis of the maximum daily emissions scenarios. The Project activities (e.g., grading, building) are identified by start date and duration. Each activity has associated off-road equipment (e.g., loaders, backhoes) and on-road vehicles (e.g., haul trucks, concrete trucks, worker commute vehicles). The CalEEMod input for construction emissions was based on the Project’s construction assumptions and default data included in CalEEMod.

Site preparation and grading of the entire Project Site would occur in one phase, which would be followed by construction of residential clusters beginning every 24 to 30 months, or consistent with the sales absorption of the prior units. Construction is anticipated to commence in 2022, pending Project approval. For the purposes of the Traffic Impact Assessment, it was assumed that the Project would be fully constructed by 2023. The following construction durations are anticipated.

- Site preparation – 2 weeks
- Grading/excavation – 12 months
- Building construction – 12 months for each cluster
- Paving – 2 weeks for each cluster

Based on information provided by the developer and supplemented with default computer model values developed by the SCAQMD, it is anticipated that the construction of the Project would involve the following equipment for each construction phase.

- Site preparation – 1 dozer, 1 water truck
- Grading – 1 dozer, 2 scrapers, 1 dump truck, 1 water truck
- Building construction – 1 crane, 3 forklifts, 1 generator set, 3 tractors/loaders/backhoes, 1 welder
- Paving – 1 paver, 1 curb machine, 1 dump truck, 1 cement truck, 1 roller
- Architectural coatings – air compressors

Project grading would involve a cut volume of 90,148 cubic yards (cy) and fill volume of 56,011 cy, and require the export of approximately 34,137 cy of soil from the Project Site, as shown in Figure 5, Grading

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Plan. More detailed information related to construction related equipment utilization, construction worker and haul truck information can be found in Appendix A of this document.

Dust control by watering was assumed within the CalEEMod modeling, consistent with the requirements of SCAQMD Rule 403. Rule 403, Fugitive Dust, requires that fugitive dust be controlled with the best available control measures (BACM) so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. SCAQMD Rule 403 requires the application of BACM which includes prewatering and stabilization of soils during clearing and grading activities, stabilization of backfill material, and stabilization of the disturbed site once site preparation and grading activities are complete. Unpaved roads/parking lots/staging areas must be stabilized and vehicles must be limited to travel on established unpaved roads and designated parking lots/staging areas. Export of materials requires that soils are stabilized during loading, transport, and unloading through the use of a watering, sufficient freeboard distance or the use of a cover. Additional requirements may be triggered under high wind conditions (winds in excess of 25 mph). Additional requirements are detailed in Rule 403. It is noted that construction contractors must also comply with SCAQMD Rules 401, Visible Emissions and 402, Nuisance; no quantitative reductions of particulate emissions are assumed for Rules 401 and 402.

Maximum daily emissions for the Project’s peak workday are shown in Table 5, Estimated Maximum Daily Construction Emissions. As shown, all criteria pollutant emissions would be less than their respective thresholds. Thus, impacts to regional construction emissions from the Project would be less than significant.

**TABLE 5
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
(LBS/DAY)**

Year	VOC	NOx	CO	SOx	PM10	PM2.5
2022	3	40	19	<1	6	3
2023	34	15	17	<1	1	1
Maximum	34	40	19	<1	6	3
SCAQMD Daily Thresholds (Table 4)	75	100	550	150	150	55
Exceeds SCAQMD Thresholds?	No	No	No	No	No	No
lbs/day: pounds per day; VOC: volatile organic compound(s); NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: inhalable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District. Source: SCAQMD 2019 (Thresholds). CalEEMod data in Appendix A.						

Construction Emissions – Local/Ambient Air Quality

The localized effects from the onsite portion of daily emissions were evaluated at receptor locations potentially impacted by the Project according to the SCAQMD’s localized significance threshold (LST) method, which utilizes onsite emissions rate look up tables and Project-specific modeling, where appropriate. LSTs are applicable to the following criteria pollutants: NO₂, CO, PM10, and PM2.5. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest receptor. For the LST CO and NO₂ exposure analysis, receptors who could be exposed for one hour or more are considered. For PM10 and PM2.5 exposure analysis, receptors who could be exposed for 24 hours are considered. The mass rate look-up tables were developed for each source receptor area and can be used to determine if a project may generate significant adverse localized air quality impacts. The City of Moreno Valley is in source-receptor area 24, Perris Valley. The SCAQMD provides LST mass rate look-up tables for projects that are less than or equal to five acres of area disturbed. For projects that exceed five acres, such as the Project, the five-acre LST look-up values can be used as a screening tool

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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to determine which pollutants require detailed analysis. If a project exceeds the LST look-up values, then the SCAQMD recommends that project-specific localized air quality modeling be performed.

When quantifying mass emissions for localized analysis, only emissions that occur on site are considered. Emissions for PM10 and PM2.5 includes dust suppression associated with SCAQMD Rule 403. Consistent with the SCAQMD's LST method guidelines, emissions related to offsite delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts. The LST analysis for the Project is shown in Table 6. As shown in Table 6, localized emissions would be less than their respective SCAQMD LSTs for all four pollutants. Thus, impacts would be less than significant, and no mitigation is required.

**TABLE 6
LOCALIZED CONSTRUCTION POLLUTANT EMISSIONS
(LBS/DAY)**

	NOx	CO	PM10	PM2.5
Grading Emissions	27	16	5	2
SCAQMD LSTs for Site Preparation*	187	999	8	5
Exceeds SCAQMD Thresholds?	No	No	No	No

lbs/day: pounds per day; NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; LST: Localized Significance Threshold.

* Thresholds for Source Receptor Area 24, Perris Valley, 2.5-acre daily site disturbance, 25-meter receptor distance.

Source: SCAQMD 2009.

Long-Term Operational Emissions

Operational emissions comprised of area, energy, and mobile source emissions were estimated using CalEEMod. Area source emissions include consumer products, routine painting, and landscaping equipment and are based on CalEEMod assumptions for the specific land uses and population. Energy emissions include the use of natural gas for hot water heating.

Mobile source emissions for the Project are based on estimated Project-related trip generation forecasts, as contained in the Project trip generation memorandum (Translutions Inc. 2021). The Project would generate an estimated 1,020 daily vehicle trips. Estimated maximum daily operational emissions for the Project are shown in Table 7.

**TABLE 7
ESTIMATED MAXIMUM DAILY OPERATIONAL EMISSIONS**

Source	Emissions (lbs/day)					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
Area sources	28	2	37	<1	4	4
Energy source	<1	1	<1	<1	<1	<1
Mobile sources	2	2	25	<1	7	2
Total Operational Emissions*	30	4	63	<1	11	6
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds?	No	No	No	No	No	No

lbs/day: pounds per day; VOC: volatile organic compounds; NOx: nitrogen oxides; CO: carbon monoxide; SO₂: sulfur dioxide; PM10: respirable particulate matter 10 microns or less in diameter; PM2.5: fine particulate matter 2.5 microns or less in diameter; SCAQMD: South Coast Air Quality Management District.

* Some totals may not add due to rounding.

Note: CalEEMod model data sheets are included in Appendix A.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Cumulative Impacts

The Riverside County portion of the SoCAB is a nonattainment area for O₃, PM₁₀, and PM_{2.5}. The Project would generate these pollutants during construction, and short-term cumulative impacts related to air quality could occur if Project construction and nearby construction activities were to occur simultaneously. In particular, with respect to local impacts, cumulative construction particulate (i.e., fugitive dust) impacts are considered when projects are located within a few hundred yards of each other. As described in the analysis above, construction emissions would be below the SCAQMD regional and localized significance thresholds. Therefore, short-term construction emissions of nonattainment pollutants would not be cumulatively considerable and Project impacts would be less than significant.

SCAQMD's policy with respect to cumulative impacts associated with criteria pollutants and their precursors is that impacts that would be directly less than significant would also be cumulatively less than significant (SCAQMD 2003). As shown in Tables 5 through 7 and discussed above, the Project's construction and operational emissions would not exceed SCAQMD thresholds. Therefore, consistent with SCAQMD policy, the cumulative construction and operational impacts of the Project would also be less than significant, and no mitigation is required.

c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. Exposure of sensitive receptors is addressed for the following situations: CO hotspots; criteria pollutants from onsite construction; and TACs from onsite construction.

Carbon Monoxide Hotspot

A CO hotspot is an area of localized CO pollution caused by severe vehicle congestion on major roadways, typically near intersections. If a project increases average delay at signalized intersections operating at level of service (LOS) E or F or causes an intersection that would operate at LOS D or better without the project to operate at LOS E or F with the project, a quantitative screening is required. As discussed in Section XVII. Transportation, implementation of the Project would result the intersection of Sycamore Canyon Boulevard and Fair Isle Drive currently operating at LOS D to operate at LOS E. As a result of Senate Bill 743 (SB 743), a Project's impacts on vehicular Level of Service (LOS) are no longer considered an environmental impact. Therefore, the Project's effects on vehicular LOS are disclosed separately in the Project's Traffic Impact Analysis, provided as Appendix K. Recommended LOS-related conditions of approval are provided therein to ensure consistency with City LOS standards that are contained in the Circulation Element. Roadway improvements that are consistent with the Circulation Element of the General Plan would ensure that the LOS would not result in congested conditions that would have the potential for a CO hotspot. In addition, with the advent of catalytic converters and improved vehicle fuel efficiency standards, both the State of California and federal ambient air quality standards for carbon monoxide have not been exceeded for decades. As such, the Project would neither cause new severe congestion nor significantly worsen existing congestion. There would be no potential for a CO hotspot or exposure of sensitive receptors to substantial, Project-generated local CO emissions.

Criteria Pollutants from Onsite Construction

Exposure of persons to NO₂, CO, PM₁₀, and PM_{2.5} emissions is discussed in the LST analysis under the response to threshold question III(b) above. As discussed, there would be a less than significant impact and no mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Toxic Air Contaminant (Diesel PM) Emissions from Onsite Construction

Construction activities would result in short-term, Project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used for site preparation (e.g., demolition, excavation, and grading); paving; and building construction. CARB identified diesel PM as a TAC in 1998. The dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer time period. According to the Office of Environmental Health Hazard Assessment, health risk assessments—which determine the exposure of sensitive receptors to TAC emissions—should be based on a 30- to 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with a project.

For the Project, there would be little off-road, heavy-duty diesel equipment in operation, and the construction period would be short when compared to a 30- to 70-year exposure period. When considering these facts combined with the highly dispersive properties of diesel PM and additional reductions in particulate emissions from newer construction equipment, as required by USEPA and CARB regulations, it can be concluded that TAC emissions during construction of the Project would not expose sensitive receptors to substantial emissions of TACs. There would be a less than significant impact and no mitigation is required.

d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant Impact. The Project would not result in other emissions that would affect a substantial number of people. Objectionable odors are generally associated with agricultural activities; landfills and transfer stations; the generation or treatment of sewage; the use or generation of chemicals; food processing; or other activities that generate unpleasant odors (SCAQMD 1993).

During construction, the Project would operate equipment that may generate odors resulting from onsite construction equipment’s diesel exhaust emissions or paving operations. However, these odors would be temporary and would dissipate rapidly from the source with an increase in distance.

Potential operational odors could be created by cooking activities associated with residential uses. These odors would be similar to existing residential uses surrounding the Project Site and throughout the City and odors would be confined to the immediate vicinity of the proposed dwelling units. The Project would also be regulated from nuisance odors and other objectionable emissions by SCAQMD Rule 402. Rule 402, Nuisance, prohibits discharge from any source of air contaminants or other material which would cause injury, detriment, nuisance, or annoyance to people or the public. Compliance with Rule 402, which the Project must do, would ensure that no significant odor impacts would result. Therefore, other emissions would be considered less than significant, and no mitigation is required.

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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IV. BIOLOGICAL RESOURCES – Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant with Mitigation. An impact analysis for sensitive biological resources potentially on the Project Site was prepared by Dudek in 2022 (Dudek 2022c, provided as Appendix B). Focused plant and burrowing owl (*Athene cunicularia*) surveys were conducted by Psomas in 2021 and the results of those surveys are detailed in the July 2021 survey reports (Appendix B). Also, an MSHCP Consistency Analysis and Determination of Biologically Equivalent or Superior Preservation Report was prepared by Dudek in October 2022 (Dudek 2022b).

Special-Status Plants

The focused plant survey determined one special status plant species, paniculate tarplant (*Deinandra paniculata*), is present on the Project Site. This species is not covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). As a species with a California Rare Plant Rank (CRPR) of 4.2, it is considered to be of limited distribution and on a “watch list”. Multiple occurrences of this species are present within the Project region. Species with a CRPR of 4.2 are not generally considered constraints on development and impacts to this species would be less than significant. No mitigation would be required.

One additional special status plant species, Parry’s spineflower (*Chorizanthe parryi* var. *parryi*), has potential to occur in the Project Site. Because sufficient growing conditions for Parry’s spineflower could not be confirmed for the 2021 survey year, species absence from the Project Site cannot be absolutely determined. Impacts to this species are fully covered under the MSHCP; therefore, compliance with the MSHCP offsets potential direct and indirect impact to this species and impacts would be less than significant. No mitigation is required.

Special-Status Wildlife

One federally listed threatened species (coastal California gnatcatcher [*Poliophtila californica californica*]) was detected within the Project Site; however, this species is a fully covered species under the MSHCP. Therefore, compliance with the MSHCP offsets the Project’s direct and indirect impacts to this species with respect to the federal Endangered Species Act and the species’ status as a California Species of Special Concern. Loss of an active nest of this species due to construction activities, however, would be considered a significant impact under CFW code and the federal Migratory Bird Treaty Act (MBTA). Impacts would be reduced to less than significant levels by implementing **MM BIO-1**, which requires a pre-construction nesting bird survey be conducted if ground-disturbing and/or vegetation clearance activities are scheduled to occur during the avian nesting season (typically February 15 through August 31).

One federally listed endangered wildlife species (San Bernardino kangaroo rat [*Dipodomys merriami parvus*]) has a low potential to occur within the Project Site and one federally listed endangered and state-listed threatened wildlife species (Stephen’s kangaroo rat [*Dipodomys stephensi*]) has a moderate potential to occur within the Project Site. San Bernardino kangaroo and Stephen’s kangaroo rat are fully covered under the MSCHP; therefore, compliance with the MSHCP offsets potential direct and indirect impacts to these species. Furthermore, the Project is also within the Stephen’s Kangaroo Rat Habitat Conservation Plan Area, which provides take authorization for Stephen’s kangaroo rat within its boundaries.

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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One California Fully Protected wildlife species (white-tailed kite) has a low potential to nest and moderate potential to forage within the Project Site. This species is fully covered under the MSCHP; therefore, compliance with the MSHCP offsets potential loss of foraging and nesting habitat of this species. Loss of an active nest of this species due to construction activities, however, would be considered a significant impact under CDFW code and the federal MBTA. Impacts would be reduced to less than significant levels by implementing **MM BIO-1**, which requires a pre-construction nesting bird survey to be conducted by a qualified biologist.

In addition, two non-listed special status species (San Diego banded gecko [*Coleonyx variegatus abbotti*] and loggerheaded shrike [*Lanius ludovicianus*]) have moderate potential to occur within the Project Site. Two other non-listed special status species (red diamond rattlesnake [*Crotalus ruber*] and coast horned lizard [*Phrynosoma blainvillii*]) have a high potential to occur within the Project Site. All of these species are fully covered under the MSCHP; therefore, compliance with the MSHCP offsets potential direct and indirect impacts to these species. Loss of an active nest of loggerhead shrike due to construction activities, however, would be considered a significant impact under CDFW code and the federal MBTA. Impacts would be reduced to less than significant levels by implementing pre-construction nesting bird requirements specified in **MM BIO-1**.

Burrowing Owl

The Project Site and vicinity contains habitat suitable for burrowing owl, a non-listed special status species. A focused burrowing owl survey was conducted in 2021 and burrowing owl were determined to be absent. If burrowing owl should colonize the Project Site or 500-foot vicinity prior to initiation of construction activities, impacts to burrowing owl could be significant. Implementation of **MM BIO-2**, which requires a pre-construction survey for burrowing owl be conducted, would reduce any potential impact to less than significant levels.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. There are no special-status vegetation communities as defined by the CDFW within the Project Site; therefore, the Project would not result in direct or indirect impacts to special-status vegetation communities.

Drainage features subject to the jurisdiction of CDFW, RWQCB, USACE are present on the Project Site and some would be directly impacted by the Project. These features are also considered riverine features under the MSCHP. None of the features, however, support riparian or wetland vegetation and impacts are assessed under CEQA Checklist Question: Biological Resources C, below.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant with Mitigation. A jurisdictional delineation was conducted for the Project Site in 2022 by Dudek (Dudek 2022b, provided as Appendix B). Based on current Project design, approximately

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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0.08 acres of waters jurisdictional to the RWQCB and CDFW, and 0.05 acres of waters jurisdictional to the USACE would be permanently impacted by the Project. The Project would also result in direct impacts to approximately 0.05 acres of riverine features pursuant to the MSHCP. Fuel modification zones would avoid riverine areas. Impacts to drainage features that are jurisdictional to the USACE, RWQCB, CDFW, and under the MSHCP would be considered significant without mitigation. **MM BIO-3** requires that the Developer obtain regulatory permits. Note that a Determination of Biologically Equivalent or Superior Preservation (DBESP) has already been approved by the RCA for the project. **MM BIO-4** specifies minimum compensatory mitigation requirements for impacts to jurisdictional waters. Implementation of **MM BIO-3** and **MM BIO-4** would reduce these impacts to a less than significant level.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with an established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant with Mitigation.

Nesting Birds

Project construction could result in direct and indirect impacts to nesting birds, including the loss of nests, eggs, and fledglings if ground-disturbing activities occur during the nesting season (generally February 15 through August 31). Construction activities during this time may result in reduced reproductive success and may violate the federal Migratory Bird Treaty Act and California Fish and Game Code. If construction (including any ground-disturbing activities) occurs during the nesting season, a nesting bird survey must be conducted by a qualified biologist prior to grading activities. If nesting birds are observed within or adjacent to the construction activities, avoidance of active bird nests shall occur as determined by the qualified biologist to ensure compliance with these regulations. Implementation of **MM BIO-1** would reduce impacts to less than significant levels.

Wildlife Corridors and Nursery Sites

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal. The Project Site and the surrounding environment to the north, east, and west contain open scrub habitat associated with Box Springs Mountain that likely functions as open habitat, but does not function as a corridor for wildlife. Additionally, the area is not identified as a wildlife movement corridor by the MSHCP. The Project Site does not function as a wildlife corridor and does not support any wildlife nursery sites. As a result, implementation of the Project would not result in impacts to these resources.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant Impact. The Heritage Trees Ordinance, which is codified as Section 9.17.030 (G) of the City of Moreno Valley Municipal Code, states that no tree taller than 15 feet or with a diameter of greater than 15 inches may be removed within City Limits. The mature trees located in the Eucalyptus alliance shown on Figure 6 of Appendix B are greater than 15 feet tall. Removing any of these trees would

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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conflict with the City ordinance. These trees are located beyond the edge of the Project's grading footprint; however, individual eucalyptus trees may be impacted due to the Project's fuel modification requirements, which necessitate thinning and removal of certain plant species. Section 9/17/030(G) allows removal of heritage trees to protect against hazardous conditions to property, such as would be needed to comply with fuel modification zone requirements. However, Implementation of **RR BIO-1** would ensure all Heritage Trees requiring removal as a result of this project would be sufficiently mitigated by replacement trees, and staff review. Accordingly, impacts would be less than significant.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or another approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant with Mitigation. The Project Site occurs within the boundaries of two regional Habitat Conservation Plans: the MSHCP and the Stephens' Kangaroo Rat Habitat Conservation Plan.

MSHCP

The Project is under the jurisdiction of the City of Moreno Valley and the Project Site is within the MSHCP Plan Area. Compliance with the MSHCP is mandatory and any conflict with the MSHCP would be likely be a significant impact.

The Project Site is not located within an MSHCP Conservation Area or within a designated Criteria Cell. To prevent conflicts with the applicable sections of the MSHCP, the Developer must do the following: pay the applicable MSHCP Development Mitigation Fee (**MM BIO-5**); implement resource avoidance measures associated with burrowing owl and riparian/riverine resources (**MM BIO-2** and **MM BIO-4**); and comply with MSHCP Urban/Wildlife Interface Guidelines (**MM BIO-6** and **RR AES-1**).

The Project is located adjacent to a proposed conservation area and has connectivity to areas described for conservation; therefore, the MSHCP Urban/Wildlife Interface Guidelines are applicable. Each of the Urban/Wildlife Interface Guidelines are further discussed below.

- **Drainage/Toxics:** The Project includes the construction of two water quality basins. With the development of a Stormwater Pollution Prevention Plan (**MM BIO-6**), the Project would be consistent with these requirements of the MSHCP.
- **Lighting/Noise:** The Project is located immediately north of existing residential development and adjacent to Morton Road. The Project would incorporate a setback consisting of open space within the northern portion of the Project Site. Furthermore, a lighting plan would be prepared noting that all new lighting would be shielded and down-cast, such that the light is not cast onto adjacent areas (**RR AES-1**). Therefore, night lighting and noise would not impact existing or future MSHCP Conservation Areas and the Project would be consistent with these requirements of the MSHCP.
- **Barriers:** The Project does not include fencing or other barriers that would impede wildlife. Furthermore, the Project Site does not function as a corridor for wildlife. Additionally, the area is not identified as a wildlife movement corridor by the MSHCP; therefore, the Project would be consistent with these requirements of the MSHCP.
- **Grading/Land Development:** No manufactured slopes would extend within existing or planned Conservation Areas as part of development of the Project. Therefore, the Project would be consistent with these requirements of the MSHCP.
- **Invasives:** Invasive species provided in MSHCP Table 6-2 are not to be used in development or restoration plan activities for projects adjacent to conservation areas. As described in **MM BIO-6**,

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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the Project shall not use invasive species as defined in the MSHCP Table 6-2 within its landscape plan. With implementation of this measure, the Project would be consistent with this requirement of the MSHCP.

- Fuel Modification: Weed abatement and fuel modification zones do not encroach into existing or planned Conservation Areas; therefore, the Project would be consistent with these requirements of the MSHCP.

With the project design features and mitigation measures, including the development of two combination detention and bioretention basins (e.g., Basins A and B), and implementation of **MM BIO-6** and **RR AES-1**, the Project is consistent with Section 6.1.4 of the MSHCP regarding Urban / Wildlands interface.

The Project Site supports riverine resources as defined by Section 6.1.2 of the MSHCP. The Project would result in the permanent loss of approximately 0.05 acres of MSHCP riverine resources. A DBESP has been prepared for the project identifying avoidance, minimization, and mitigation measures for impacts to riverine resources. The DBESP was reviewed and approved by the RCA in 2022 and is attached in Appendix B. With implementation of **MM BIO-4** which specifies minimum compensatory mitigation requirements, the Project is consistent with Section 6.1.2 of the MSHCP regarding protection of species associated with riparian/riverine areas and vernal pools.

The Project Site occurs within an area identified by the MSHCP as requiring burrowing owl surveys. With implementation of **MM BIO-2**, which requires a pre-construction burrowing owl survey, the Project would be consistent with the MSHCP burrowing owl requirements and Criteria Area Species Survey Area discussed in Section 6.3.2 of the MSHCP.

As a result of implementation of **MM BIO-2**, **MM BIO-4**, **MM BIO-5**, **MM BIO-6**, **MM BIO-7**, and **RR AES-1**, potential conflicts with the MSHCP, as explained above, would be avoided and no impacts are anticipated.

Stephens’ Kangaroo Rat Habitat Conservation Plan

The Project Site is within the Stephens’ Kangaroo Rat Habitat Conservation Plan boundary. With payment of the Stephens’ Kangaroo Rat Habitat Conservation Plan Development Mitigation Fee (**MM BIO-7**), the Project would be consistent with the Stephens’ Kangaroo Rat Habitat Conservation Plan and less than significant impacts would result from the Project.

Mitigation Program:

Regulatory Requirements:

- RR AES-1** The Developer shall prepare a Lighting Plan that provides the type and location of proposed exterior lighting and signage, subject to the review and approval of the City’s Development Services Department. All new lighting shall be shielded and down-cast, such that the light is not cast onto adjacent properties or visible from above.
- RR BIO-1** The Developer shall obtain a tree removal permit from the City, if fuel modification, grading, or other improvements require removal of any heritage trees. The Developer would incorporate mitigation trees, replacing removed heritage trees, resulting from a tree removal permit into the Project’s final landscape plan.

Mitigation Measures:

- MM BIO-1:** To maintain compliance with the Migratory Bird Treaty Act and California Fish and Game Code, if ground-disturbing and/or vegetation clearance activities are scheduled to occur during the avian nesting season (typically February 15 through August 31), a pre-construction nesting bird survey shall be conducted by a qualified biologist within the

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Project Site and a 500-foot buffer around the Project Site. Surveys shall be conducted within 3 days prior to initiation of activity and shall be conducted between dawn and noon.

If an active nest is detected during the nesting bird survey, avoidance buffers shall be implemented as determined by a qualified biologist. The buffer shall be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests shall be monitored as determined by the qualified biologist until nestlings have fledged and dispersed or it is otherwise confirmed that the nest has been unsuccessful or abandoned.

MM BIO-2: The Developer shall have a qualified biologist conduct a pre-construction survey for burrowing owl in accordance with the March 2006 Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area. This survey shall occur within 30 days prior to ground-disturbance activities. A minimum of one survey site visit within the described time frame prior to disturbance is required to confirm presence or absence of owls on the site. If burrowing owl are present within the survey area, take of active nests shall be avoided as determined by a qualified biologist.

MM BIO-3: For all features identified as jurisdictional that cannot be avoided, the Developer shall obtain permits from the respective agencies prior to the initiation of construction activities. These permits include a Clean Water Act (CWA) Section 404 permit from the USACE, a CWA Section 401 water quality certification from the Regional Water Quality Control Board, and a CDFW Section 1602 Notification of Lake or Streambed Alteration.

The Developer shall implement and comply with all measures required by the jurisdictional permits. Mitigation for the loss of jurisdictional resources shall be negotiated with the resource agencies (US Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife) during the regulatory permitting process.

MM BIO-4: The Developer shall compensate for impacts to jurisdictional waters and riparian/riverine areas by providing a 1:1 ratio of offsite land within the Santa Ana Watershed or an adjacent watershed to be acquired for the purpose of In-Perpetuity Preservation, or through the purchase of mitigation credits at an established off-site Mitigation Bank or In-lieu Fee Program. Mitigation proposed on land acquired for the purpose of in-perpetuity mitigation that is not part of an agency-approved mitigation bank or in-lieu fee program shall include the preservation, creation, restoration, and/or enhancement of similar habitat within the Santa Ana Watershed or an adjacent watershed pursuant to a Habitat Mitigation and Monitoring Plan (HMMP) to be approved by the Lead and Responsible agencies. The HMMP shall be prepared prior to any impacts and it shall provide details as to the implementation of mitigation, maintenance, future monitoring, and management. The goal of the mitigation shall be to preserve, create, restore, and/or enhance similar habitat with equal or greater function and value than the affected habitat.

MM BIO-5: The Developer shall pay the applicable MSHCP Development Mitigation Fee prior to initiation of grading activities.

MM BIO-6: The following avoidance and minimization measures shall be implemented during Project construction activities:

- Construction limits along the northern and eastern boundaries of the Project shall be clearly marked so that adjacent native vegetation is avoided.
- Staging and storage areas for spoils, equipment, materials, fuels, lubricants, and solvents shall be located within the designated impact area or adjacent developed areas.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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- A Stormwater Pollution Prevention Plan shall be developed and implemented.
- Invasives: Invasive species identified in Table 6-2 of the MSHCP shall not be used in development landscape plans or restoration plan activities.

MM BIO-7: The Developer shall pay the applicable Stephens' Kangaroo Rat Habitat Conservation Plan Development Mitigation Fee prior to initiating any grading activities.

V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Response:

No Impact. A Phase I cultural resources survey was completed by CRM Tech in 2007 for the Project Site (Appendix C), which included a records search, historical research, a systematic field survey and consultation with Native American representatives. As a result of the survey, two archaeological sites, 33-015937 (CA-RIV-8274/H) and 33-015938 (CA-RIV-8275), and a prehistoric isolate, 33-015967, were identified and recorded within the Project Site.

In order to evaluate their qualifications as “historical resources,” as defined by CEQA, archaeological testing was recommended on the two sites. The isolate, which consisted of a hand-held grinding stone that appears to have been used as a mano and a pestle, was not considered a potential “historical resource” due to its lack of contextual integrity and its limited ability to contribute information to the study of prehistory (CRM Tech 2018).

Site 33-015937 (CA-RIV-8274/H) consists of both prehistoric and historic-period components, including bedrock milling features, building foundations, a well, a cistern, and a refuse deposit. CA-RIV-8275 consists of two bedrock milling features (CRM Tech 2018).

Sites 33-015937 and 33-015938 were subsequently evaluated in 2007 with a testing program, which included surface collection of artifacts and the excavation of shovel test pits, standard archaeological units, and mechanical trenches. Also, focused historical research was completed on Site 33-015937. No subsurface cultural remains were discovered during excavation, and the historical research did not identify any significant persons or events associated with the sites, nor any other historical quality of distinction. Therefore, the two sites were determined not to meet CEQA definition of “historical resources” (Chambers Group 2007).

In 2018, an *Update to Previous Cultural Resources Studies* was prepared by CRM Tech for the Project Site (Appendix C). This updated evaluation included a standard one-mile-radius records search, which was conducted November 14, 2018, at the Eastern Information Center (EIC). The results of the records search indicate that in addition to the survey and testing reports summarized above, another cultural resources survey also took place within the project boundaries in 2007. That survey was focused on the site of a wooden power pole that was slated to be replaced, and no cultural resources were identified in the vicinity. No other studies have occurred in the Project area since 2007 and Sites 33-015937 and 33-015938 and Isolate 33-015967 remain the only cultural resources recorded in the immediate vicinity. As stated above, all three of these known cultural resources were previously determined not to constitute “historic resources” under CEQA provisions and were not further evaluated in the 2018 updated cultural resource study.

Also in 2018, additional historical background research was conducted with the purpose of supplementing and updating the findings of the 2007 studies with information from sources that have become available since then, such as aerial photographs taken between 1966 and 2018, accessible at the Nationwide Environmental Title Research Online website and through the Google Earth software. As mentioned in the 2007 survey report, an apparent homestead was once located in the northeast portion of the Project area,

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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at the location of Site 33-015937. The aerial photographs confirmed the presence of at least one residence and several ancillary structures at that location during the 1960s–1970s. By 1994, all of the buildings and structures had been removed, and some grading or clearing had occurred in the Project area for unknown purposes.

Finally the 2018 updated cultural resource study included a field inspection that focused primarily on the locations of the three previously recorded cultural resources, and the rest of the Project Site was inspected along the southern and western perimeters for an overview of the current conditions of the property. The field inspection revealed that features of Sites 33-015937 and 33-015938, such as the bedrock milling features and the structural remains, were still present in a similar condition as in 2007, but the ground stone artifact at Isolate 33-015967 could not be located. No other potential cultural resources were encountered within or adjacent to the Project boundaries during the field inspection.

Based on these findings, no historical resources eligible for the California Register of Historic Resources or a local register are present within or adjacent to the Project Site. Therefore, the Project would not result in any direct or indirect impacts to historic resources pursuant to CEQA, and no mitigation is required.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant with Mitigation. As described in more detail above and in the cultural reports (Appendix C), given the presence of archaeological resources in the vicinity of the Project, there is the possibility that undiscovered intact cultural resources, including archaeological resources may be present below the surface in native sediments. This would represent a significant impact. However, implementation of **MM CUL-1**, which requires that any suspected cultural (archaeological) resources inadvertently unearthed during grading be evaluated by a qualified archaeologist to determine their significance and make recommendations for the appropriate course of action, would reduce this impact to a level considered less than significant. Also, **MM CUL-2** has been incorporated, which requires archaeological monitoring for all ground disturbance activities that occur within 30 meters (100 feet) of Sites 33-015937 and 33-015938. With implementation of these measures, impacts to archaeological resources would be reduced to a less than significant level.

c) Disturb any human remains, including those interred outside of formally dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant Impact. There is no indication that human remains are present within the Project Site, including those interred outside formal cemeteries. The records searches conducted as part of the Project’s Cultural Report indicates no evidence of human remains on or near the Project Site (CRM Tech 2018). In the unlikely event of an unanticipated encounter with human remains in Project Site, the *California Health and Safety Code* and the *California Public Resources Code* require that any activity in the area of a potential find be halted and the County Coroner be notified, as described in **RR CUL-1**. Compliance with **RR CUL-1** would ensure that impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Mitigation Program:

Regulatory Requirement:

RR CUL-1: In the event of the discovery of human remains, the developer shall contact the County coroner immediately. If human remains of Native American origin are discovered during ground-disturbing activities, the developer shall comply with the State laws relating to the disposition of Native American burials that fall within the jurisdiction of the Native American Heritage Commission (NAHC; PRC §5097). According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that excavation is stopped near discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the California Native American Heritage Commission shall be notified, and appropriate measures provided by State law shall be implemented to determine the most likely living descendant(s). Disposition of the remains shall be overseen by the most likely living descendants to determine the most appropriate means of treating the human remains and any associated grave artifacts.

Mitigation Measure

MM CUL-1: Prior to the issuance of a demolition permit, the Developer shall submit the name and qualifications of a qualified archaeologist to the City of Moreno Valley Community Development Department for review and approval. Once approved, the qualified archaeologist shall be retained by the Developer. In the event that suspected cultural (archaeological) resources or tribal cultural resources are inadvertently unearthed during excavation activities, the contractor shall immediately cease all earth-disturbing activities within a 100-foot radius of the area of discovery. The Project contractor or Developer shall contact the qualified archaeologist to request an evaluation of the significance of the find and determine an appropriate course of action. If avoidance of the resource(s) is not feasible, salvage operation requirements pursuant to Section 15064.5 of the State California Environmental Quality Act Guidelines shall be followed in consultation with the City. After the find has been appropriately avoided or mitigated, work in the area may resume.

MM CUL-2: Archaeological monitoring will be conducted by a qualified archaeologist for all ground disturbance activities that occur within 30 meters (100 feet) of Sites 33-015937 and 33-015938, which are identified in greater detail within the Project’s cultural reports (Appendix C). If any suspected cultural (archaeological) resources are detected, the procedures identified in **MM CUL-1** will be implemented.

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. ENERGY – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. The State of California has adopted efficiency design standards within the Title 24 Building Standards and California Green Building Standards Code (CALGreen) requirements (**RR ENE-1**). Title 24 of the California Code of Regulations (CCR, specifically, Part 6) is California’s Energy Efficiency Standards for Residential and Non-residential Buildings. Title 24 was established by the California Energy Commission (CEC) in 1978 in response to a legislative mandate to create uniform building codes to reduce California’s energy consumption and to provide energy efficiency standards for residential and non-residential buildings. The 2019 California Green Building Standards Code (24 CCR, Part 11), also known as the CALGreen Code, contains mandatory requirements for new residential and nonresidential buildings throughout California (**RR ENE-2**). The development of the CALGreen Code is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the Code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impacts during and after construction. The regulation of energy efficiency for residential and non-residential structures is established by the CEC and its California Energy Code.

SCE and the Southern California Gas are utility companies that would provide electrical and natural gas services to the Project Site. Compliance with energy efficiency and conservation policies and regulations is discussed in this section.

The City of Moreno Valley has adopted Moreno Valley 2040 Plan which serves as the City’s General Plan pursuant to State law. Section 7.6 Energy Resources of the Moreno Valley 2040 Plan contains attainable conservation goals and policy actions that would assist in energy conservation within the community. This Section discusses how electricity production is generated from burning fossil fuels and that transportation is currently reliant on the consumption of gasoline and diesel fuels. The advent of electric vehicles is also increasingly displacing the need to consume gasoline and diesel for transportation. The State of California leads the country in the adoption of electric vehicles (Moreno Valley 2021d).

The City of Moreno Valley further adopted a Climate Action Plan in June, 2021 that established a comprehensive Green House Gas reductions strategy for the City. Some of the regulatory policies applicable to new residential developments (operational and construction-related measures) are included herein for explanation, and which will be added as conditions of approval to the Project, to further mitigate the wasteful use of energy resources. They include the following which have been added as Regulatory Requirements below (**RR ENE -3**) :

1. Require new multi-family residential development to reduce the need for external trips by providing useful services/facilities on-site such as electric vehicle infrastructure. (Policy TR-9)
2. incentives such as streamlined permitting or bonus density for new multi-family buildings and reroofing projects to install “cool” roofs consistent with the current California Green Building Code (CALGreen) standards for commercial and industrial buildings. (Policy R-1)
3. Require new construction and major remodels to install interior real-time energy smart meters in line with current utility provider (e.g., MVU, SCE) efforts. (Policy R-2)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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4. Reduce emissions from heavy-duty construction equipment by limiting idling based on South Coast Air Quality Management District (SCAQMD) requirements and utilizing cleaner fuels, equipment, and vehicles.
 - a. Require provision of clear signage reminding construction workers to limit idling
 - b. Require project applicants to limit GHG emissions through one or more of the following measures:
 - i. substitute electrified or hybrid equipment for diesel/gas powered equipment
 - ii. Use alternative fueled equipment on site
 - iii. Avoid use of on-site generators. (Policy OR-2)

Construction Impacts

Project construction would require the use of construction equipment for demolition, grading, and building activities. All off-road construction equipment is assumed to use diesel fuel. Construction also includes the vehicles of construction workers and vendors traveling to and from the Project Site.

Off-road construction equipment use was calculated from the equipment data (mix, hours per day, horsepower, load factor, and days per phase) provided in the CalEEMod construction output files included in Appendix A. The total horsepower hours for the Project was then multiplied by fuel usage estimates per hours of construction activities included in the Off-Road Model.

Fuel consumption from construction worker, vendor, and delivery/haul trucks was calculated using the trip rates and distances provided in the CalEEMod construction output files. Total vehicle miles traveled (VMT) was then calculated for each type of construction-related trip and divided by the corresponding miles per gallon factor using CARB’s Emissions FACTor (EMFAC) 2017 model. EMFAC provides the total annual VMT and fuel consumed for each vehicle type. Construction vendor and delivery/haul trucks were assumed to be heavy-duty diesel trucks.

As shown in Table 8, Energy Use During Construction, a total of 15,871 gallons of gasoline and 23,135 gallons of diesel fuel is estimated to be consumed during Project construction.

**TABLE 8
ENERGY USE DURING CONSTRUCTION**

Source	Gasoline (gallons)	Diesel (gallons)
Off-road Construction Equipment	10,413	10,457
Worker commute	4,373	19
Vendors	1,070	17
On-road haul	15	12,642
Totals	15,871	23,135
Sources: based on data from CalEEMod, OffRoad, and EMFAC2017. Energy data can be found in Appendix D.		

Fuel energy consumed during construction would be temporary in nature and would not represent a significant demand on energy resources. The Project would also implement best management practices such as requiring equipment to be properly maintained and minimize idling (as further stipulated under **RR ENE-3**). Furthermore, there are no unusual Project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the State. Energy used in the construction of the Project would enable the development of buildings

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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that meet the latest energy efficiency standards as detailed in California’s Title 24 building standards (**RR ENE-1**). Therefore, the proposed construction activities would not result in inefficient, wasteful, or unnecessary fuel consumption and a less than significant impact would occur.

Operational Impacts

The Project would promote building energy efficiency through compliance with energy efficiency standards (Title 24 and CALGreen [**RR ENE-2**]) and Climate Action Plan policies (**RR ENE-3**). The development of the Project is required to comply with the latest building energy efficiency standards adopted by the State of California. The estimated energy consumption attributable to the Project as calculated by CalEEMod is shown in Table 9 below.

**TABLE 9
ENERGY USE DURING OPERATIONS**

Land Use	Gasoline/yr (gallons)	Diesel/yr (gallons)	Natural Gas (kBTU/yr)	Electricity (kWh/yr)
Project Land Uses	120,409	1,533	2,447,660	609,342
kBTU: kilo-British thermal units; kWh: kilowatt hour; yr: year				
Sources: Energy data can be found in Appendix D.				

Adherence to the 2019 Building Energy Efficiency Standards would result in a reduction of energy use as compared to previous energy standards (CEC 2018). Therefore, the new buildings would be more energy efficient than existing buildings proximate to the Project Site and would be among the most energy efficient buildings in the City. In terms of whether the operations phase would result in a wasteful, inefficient, or unnecessary consumption of energy resources, during Project operation, the Project would add new energy efficient units to the housing inventory within Riverside County, in keeping with new regulatory requirements that stipulate reduced energy usage. Therefore, the Project would not result in an inefficient, wasteful, or unnecessary consumption of energy. There would be a less than significant impact, and no mitigation is required.

Mitigation Program

Regulatory Requirements:

- RR ENE-1** The Project must be designed in accordance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.
- RR ENE-2** The Project is subject to the California Green Building Standards Code (CALGreen) (CCR, Title 24, Part 11). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.
- RR ENE-3** The Project shall comply with applicable policies of the Moreno Valley Climate Action Plan by complying with meeting the following policies:
 1. Require new multi-family residential development to reduce the need for external trips by providing useful services/facilities on-site such as electric vehicle infrastructure. (Policy TR-9)
 2. incentives such as streamlined permitting or bonus density for new multi-family buildings and reroofing projects to install “cool” roofs consistent with the current

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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California Green Building Code (CALGreen) standards for commercial and industrial buildings. (Policy R-1)

3. Require new construction and major remodels to install interior real-time energy smart meters in line with current utility provider (e.g. MVU, SCE) efforts. (Policy R-2)
4. Reduce emissions from heavy-duty construction equipment by limiting idling based on South Coast Air Quality Management District (SCAQMD) requirements and utilizing cleaner fuels, equipment, and vehicles.
 - a. Require provision of clear signage reminding construction workers to limit idling
 - b. Require project applicants to limit GHG emissions through one or more of the following measures:
 - i. substitute electrified or hybrid equipment for diesel/gas powered equipment
 - ii. Use alternative fueled equipment on site
 - iii. Avoid use of on-site generators. (Policy OR-2)

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. The Project would be required to comply with the State of California’s Title 24 Energy Efficiency Standards and Title 24 Green Building Standards (**RR ENE-1** and **RR ENE-2**, respectively) which are both adopted by a local ordinance in the City, and the Project would comply with the City’s Climate Action Plan (**RR ENE-3**). As discussed previously, the latest building standards would incorporate the CEC’s building energy efficiency standards, which would reduce energy consumption through the incorporation energy efficiency requirements. This would result in efficient use of electricity, natural gas, and water as compared to older buildings developed under less stringent Title 24 requirements.

Because the Project would comply with the latest energy efficiency standard, the Project would be consistent with energy conservation goals established within the Moreno Valley 2040 Plan and the City’s Climate Action Plan (Moreno Valley 2021c, 2021d). As such, the Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and no impact would occur.

Mitigation Program

Regulatory Requirements:

RR ENE-1 The Project must be designed in accordance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.

RR ENE-2 The Project is subject to the California Green Building Standards Code (CALGreen) (CCR, Title 24, Part 11). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to https://www.conservation.ca.gov/cgs/Documents/SP_042.pdf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Response:

No Impact. The Project Site is not located within an Alquist-Priolo Earthquake Fault Zone. According to the Geotechnical Report (Appendix E), the possibility of damage to structures or site improvements because of ground rupture is considered negligible because active faults are not known to cross the site (LGC Geo-Environmental, Inc 2018a, DOC 2021). Therefore, no impact would result and no mitigation is required.

ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant with Mitigation. The Project Site, as with the entire Southern California region, is subject to secondary effects from earthquakes. The nearest known faults in the vicinity of the Project Site include the San Jacinto-San Bernardino (5.2 miles away) and San Jacinto-San Jacinto Valley (5.6 miles away) fault zones.

Implementation of the Project would not change the intensity of ground shaking that would occur on the Project Site during a seismic event, but it would increase exposure to additional people. The proposed buildings would be designed in accordance with the most recent California Building Code (CBC) (CBC 2019). The CBC contains minimum standards regulating the design and construction of excavations, foundations, retaining walls, and other building elements to control the effects of seismic ground shaking and adverse soil conditions. The CBC also includes provisions for earthquake safety based on factors such as occupancy type, the types of soil and rock on-site, and the strength of ground motion that may occur at the Project Site. Project implementation would also occur consistent with the recommendations outlined in the Geotechnical Report prepared for the Project (Appendix E), including over-excavation. Based on the Geotechnical Report, the Project is geotechnically feasible provided that the recommendations in the Geotechnical Report are reviewed in the context of the final Project design and are incorporated during the Project’s construction phase. Seismic design parameters have been included in the Geotechnical Report based on the seismic zone, soil profile, and proximity of known faults to the Project Site, which provide the minimum design procedures to avoid significant cosmetic damage structures (LGC Geo-Environmental, Inc 2018a, 2018b). Compliance with the applicable regulations, and proper grading, design, and building construction methods specified in the Geotechnical Report, as required in **MM GEO-1**, would ensure that impacts that may result from strong seismic ground shaking at the Project Site would be less than significant.

iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The potential for liquefaction was found to be negligible in the Project’s Geotechnical Report because of shallow depths to very dense older alluvial fan deposits and hard bedrock,

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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which are not conducive to liquefaction (LGC Geo-Environmental, Inc 2018a). Furthermore, the Project would over excavate down to competent base materials, which would minimize potential for liquefaction. The Project would result in less than significant impacts related to this threshold, and no mitigation is required.

iv) Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant With Mitigation. Earthquake-induced land sliding often occurs in areas where previous landslides have moved and in areas where the topographic, geologic, geotechnical, and subsurface groundwater conditions are conducive to permanent ground displacements. According to the Geotechnical Report, there was no geologic literature that indicated the presence of landslides on or directly adjacent to the Project Site (LGC Geo-Environmental, Inc 2018a). However, the Project includes cuts into a slope, which have the potential to result in landslides if not designed and implemented pursuant to geotechnical recommendations. Therefore, the Slope Stability Report prepared for the Project identifies design, construction, and monitoring measures to be implemented, which would ensure that the Project's slopes would be stable once constructed (Dynamic Geotechnical Solutions 2021). Compliance with the recommendations of the Slope Stability Report, as required in **MM GEO-1**, would ensure that impacts that may result from landslides would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project would grade and develop the site with new impervious surfaces and new pervious landscaped areas. Project construction would expose soils on the site and would require the hauling of soil off-site, which could result in soil erosion and the loss of topsoil if not implemented consistent with regulatory requirements. The largest source of erosion and topsoil loss is uncontrolled drainage during construction. As discussed in more detail in Section IX, Hydrology and Water Quality, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into "waters of the U.S.". Construction activities shall be conducted in compliance with the statewide NPDES General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No 2012-0006-DWQ, NPDES No. CAS000002), adopted by the State Water Resources Control Board (SWRCB) on July 17, 2012. In compliance with the NPDES permit, erosion potential during construction of the Project would be managed with Best Management Practices (BMPs) implemented on the Project Site as part of a Storm Water Pollution Prevention Plan (SWPPP) during construction activities in accordance with NPDES requirements. Implementation of the BMPs would ensure that construction-related erosion impacts would be less than significant.

c) Be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant With Mitigation. The Project's Geotechnical Report found that the Project was geotechnically feasible, with implementation of grading and foundation recommendations. As noted above, the Project is not in a location susceptible to landslides. Potential impacts related to lateral spreading would

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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be avoided through adherence to preliminary foundation design recommendations in the Geotechnical Report. The top level of the soil on the Project Site, where construction will take place, consists of undocumented artificial fill, topsoil, alluvium and weathered portions of the older alluvial fan deposits and bedrock are susceptible to subsidence, liquefaction, and collapse. As required by the Geotechnical Report, the Project would include the over excavation during the Project's grading down to underlying competent older alluvial fan deposits or bedrock. Over excavation would range from approximately 2- to 10-feet in depth depending on the location within the Project Site. With implementation of the foundation design and grading recommendations contained in the Geotechnical Report, as specified in **MM GEO-1**, less than significant impacts would result from the Project (LGC Geo-Environmental, Inc 2018a).

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant With Mitigation. Expansive soils are materials that, when subject to a constant load, are prone to expand when exposed to water. The hazard associated with expansive soils is that they can overstress and cause damage to the foundation of buildings set on top of them. Results of the testing conducted as part of the Geotechnical Report indicates that onsite soil materials exhibit very low expansion potentials in accordance with the CBC. Therefore, with implementation of the construction and foundation recommendations in the Geotechnical Report, as specified in **MM GEO-1**, less than significant impacts would result from the Project, related to this threshold.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. The Project Site and related development would be connected to existing infrastructure in the vicinity (municipal sewer system) for wastewater disposal, currently served by Easter Municipal Water District. The Project does not require the development of either septic tanks or alternative wastewater systems. No related impacts would result, and no mitigation is required.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant with Mitigation. The Project Site lies on the Perris Block, which is part of an unfaulted, eroded mass of Cretaceous granitic rock of the Southern California Batholith. This formation of granite rock is composed of primarily quartz diorite with areas of biotite-hornblende Tonalite. Overlying this bedrock is the Old Alluvial Deposits of the Late Pliocene- Early Pleistocene. This layer of alluvial deposits holds moderate to high potential for paleontological resources. Overlying this alluvial deposit is the Late Pleistocene-recent Holocene Young Alluvial Valley Deposits which typically has a low potential for any paleontological resources; however, it should be noted over 100,000 fossil specimens from 105 plant and animal species from the Early Pleistocene Very Old Alluvial Fan Deposits were documented nearby at Diamond Valley Lake in the 1990s. Therefore, there is always the possibility faunal and floral assemblages may inadvertently be discovered during ground disturbance within the Young Alluvial Valley Deposits.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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However, it should be noted the City’s General Plan EIR Figure 5.10-3 – Paleontological Resource Sensitive Areas identifies the Project Site as having Low Potential for paleontological resources. Furthermore, according to the Geotechnical Report prepared for the Project, areas of the Project Site that would be excavated include Artificial Fill (2.0feet [ft] to 5.5 ft thick), Topsoil (0.5ft to 2.0ft thick), and alluvium of the Young Alluvial Valley Deposits (2.0ft to 10.0ft thick) followed by the Older Alluvial Fan Deposits (20.ft to 12.0ft thick) and the Bonzal Tonalite Bedrock (0.5ft to 12.0ft thick) below, which are located within areas of the Project Site. These deposits would be excavated as a result of the Project. Therefore, ground disturbance within the Young Alluvial Valley Deposits and the Old Alluvial Fan Deposits should be considered moderate to high sensitivity for intact paleontological resources. Impacts to paleontological resources, if encountered, would be significant without mitigation. Accordingly, incorporation of **MM GEO-2** which requires that a qualified paleontologist be retained to observe grading activities in the Older Alluvial Fan and Alluvium deposits on the Project Site and to salvage and catalogue fossils as necessary, would ensure that impacts to fossil resources are reduced to below a level of significance.

Mitigation Program

Mitigation Measures:

MM GEO-1 Prior to approval of final plans and specifications for the Project, the City shall review the Project plans to confirm that all recommendations in the Geotechnical Report (prepared by LGC Geo-Environmental, Inc in 2018), the Slope Stability Report (prepared by Dynamic Geotechnical Solutions in 2021), and any future geotechnical reports have been fully and appropriately incorporated into all grading and construction drawings.

MM GEO-2: Prior to the issuance of a grading permit, the Developer shall submit the name and qualifications of a qualified paleontologist to the City of Moreno Valley Community Development Department for review and approval. Once approved, the qualified paleontologist shall be retained by the Developer on an on-call basis to observe grading activities in the Young Alluvial Valley Deposits and Old Alluvial Fan Deposits on the Project Site and to salvage and catalogue fossils as necessary. At the Project’s Pre-Grade Meeting, the paleontologist shall discuss the sensitivity of the sediment being graded and shall establish procedures for monitoring. Protocols must be developed and explained for temporarily halting or redirecting work to permit sampling, identification, and evaluation of any fossils discovered. If the fossils are deemed significant, the paleontologist shall determine appropriate actions, in cooperation with the City of Moreno Valley, to recover and treat the fossils and to prepare them to the point of identification. A final Paleontological Resources Monitoring Report shall include a catalogue and analysis of the fossils found; a summary of their significance; and the repository that would curate the fossils in perpetuity.

VIII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Environmental Setting

Climate change refers to any significant change in climate, such as the average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have been associated with global warming, which is an average increase in the temperature of the atmosphere near the Earth’s surface; this is attributed to

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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an accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn increases the Earth’s surface temperature. Some GHGs occur naturally and are emitted into the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through fossil fuel combustion, in conjunction with other human activities, are associated with global warming.

GHGs, as defined under California’s Assembly Bill (AB) 32, include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). General discussions on climate change often include water vapor, O₃, and aerosols in the GHG category. Water vapor and atmospheric O₃ are not gases that are formed directly in the construction or operation of development projects, nor can they be controlled in these projects. Aerosols are not gases. While these elements have a role in climate change, they are not considered by regulatory bodies, such as CARB, or climate change groups, such as The Climate Registry, as gases to be reported or analyzed for control. Therefore, no further discussion of water vapor, O₃, or aerosols is provided herein.

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both its potency and lifespan in the atmosphere as compared to CO₂. For example, since CH₄ and N₂O are approximately 25 and 298 times more powerful than CO₂, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO₂ has a GWP of 1). Carbon dioxide equivalent (CO₂e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the emission rate of that gas to produce the CO₂e emissions.

Regulatory Setting

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce snowpack in the Sierra Nevada Mountains; could further exacerbate California’s air quality problems; and could potentially cause a rise in sea levels. In an effort to avoid or reduce the impacts of climate change, Executive Order S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010; to year 1990 levels by 2020; and to 80 percent below 1990 levels by 2050.

AB 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code §38501), recognizes that California is the source of substantial amounts of GHG emissions. The statute states that:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems; a reduction in the quality and supply of water to the state from the Sierra snowpack; a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences; damage to marine ecosystems and the natural environment; and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

In order to avert these consequences, AB 32 establishes a State goal of reducing GHG emissions to 1990 levels by the year 2020, which is a reduction of approximately 16 percent from forecasted emission levels, with further reductions to follow. In an effort to help achieve this reduction, on November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, raising California’s renewable energy goals to 33 percent by 2020.

California Executive Order B-30-15 (April 29, 2015) set an “interim” statewide emission target to reduce GHG emissions to 40 percent below 1990 levels by 2030 and directed State agencies with jurisdiction over GHG emissions to implement measures pursuant to statutory authority to achieve this 2030 target and the 2050 target of 80 percent below 1990 levels.

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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On September 8, 2016, the Governor signed Senate Bill (SB) 32 to codify the GHG reduction goals of EO B-30-15, requiring the State to reduce GHG emissions by 40 percent below 1990 levels by 2030 (Health and Safety Code Section 38566). This goal is expected to keep the State on track to meeting the goal set by EO S-3-05 of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32’s findings state that CARB will “achieve the state’s more stringent greenhouse gas emission reductions in a manner that benefits the state’s most disadvantaged communities and is transparent and accountable to the public and the Legislature.”

Title 24, Part 6, Energy Efficiency Standards (incorporated as **RR ENE-1**). The Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6) were established in 1978 in response to a legislative mandate to reduce California’s energy consumption. The current applicable standards are the 2019 Standards, effective January 1, 2020. The California Energy Commissions states that nonresidential buildings built with the 2019 standards will use about 30 percent less energy due to energy efficiency measures versus those built under the 2016 standards due mainly to lighting upgrades. The new code will reduce greenhouse gas emissions by 700,000 metric tons over three years (CEC 2018). The requirements of the energy efficiency standards result in the reduction of natural gas and electricity consumption. Since natural gas use produces criteria pollutant emissions, a reduction in natural gas consumption results in a related reduction in air quality emissions.

Title 24, Part 11, Green Building Standards (incorporated as **RR ENE-2**). The 2019 California Green Building Standards Code (CCR, Title 24, Part 11) is a code with mandatory requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools, and hospitals) throughout California and became effective on January 1, 2020. The code is Part 11 of the California Building Standards Code in Title 24 of the California Code of Regulations and is also known as the CALGreen Code. The development of the CALGreen Code is intended to (1) reduce GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction. The CALGreen Code contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more.

The City of Moreno Valley adopted its Climate Action Plan (CAP) on June 15, 2021 (Moreno Valley 2021d). The CAP is intended to help reduce GHG emissions, prepare the community for the impacts of climate change, improve the quality of life, and enhance economic vitality in Moreno Valley. Moreno Valley strives to be a more sustainable and resilient city in the face of climate change impacts such as air pollution, extreme heat, and drought. The CAP provides a framework for creating or updating policies, programs, practices, and incentives for Moreno Valley residents and businesses to reduce the City’s GHG footprint and ensure the community and physical assets are better protected from the impacts of climate change (Moreno Valley 2021b).

Significance Criteria

The City of Moreno Valley has not formally adopted a quantitative GHG emissions significance criterion to date. Beginning in April 2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold of 10,000 metric tons of CO₂ equivalent per year (MTCO_{2e}/yr) for projects where the SCAQMD is the lead agency (SCAQMD 2008). In September 2010, presented a revised tiered approach to determining GHG significance for residential and commercial projects (SCAQMD 2010). These proposals have not yet been considered by the SCAQMD Board.

At Tier 1, GHG emissions impacts would be less than significant if the project qualifies under a categorical or statutory CEQA exemption. At Tier 2, for projects that do not meet the Tier 1 criteria, the GHG emissions

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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impact would be less than significant if the project is consistent with a previously adopted GHG reduction plan that meets specific requirements.¹ At Tier 3, the Working Group proposes extending the 10,000 MTCO₂e/yr screening threshold currently applicable to industrial projects where the SCAQMD is the lead agency, described above, to other lead agency industrial projects. The Working Group also proposes the following Tier 3 screening values: either (1) a single 3,000 MTCO₂e/yr threshold for all land use types or (2) separate thresholds of 3,500 MTCO₂e/yr for residential projects, 1,400 MTCO₂e/yr for commercial projects, and 3,000 MTCO₂e/yr for mixed-use projects. The screening thresholds are based on estimates that the threshold would capture 90 percent of the GHG emissions from residential and commercial projects. Therefore, a project with emissions less than the applicable screening value would be considered to have less than significant GHG emissions. Projects with emissions greater than the Tier 3 screening values would be analyzed at Tier 4 by one of the three methods. Projects with GHG emissions not meeting the Tier 4 targets would be required to provide mitigation in the form of real, quantifiable, and verifiable offsets to achieve the target thresholds. The offsets may be achieved through project design features, other onsite methods, or by offsite actions, such as energy efficiency upgrade of existing buildings.

In summary, to date, the SCAQMD Board has adopted an interim CEQA significance threshold for GHGs for industrial projects where the SCAQMD is the lead agency and continues to consider screening levels under CEQA for residential, commercial, and mixed-use projects. This proposed screening and mitigation proposal from SCAQMD remains a work in progress; the Working Group has not convened since fall 2010. The proposal has not been considered or approved for use by the SCAQMD Board. However, the interim draft significance thresholds are used for determination of potential GHG impacts because they represent the latest basis for GHG CEQA thresholds from the SCAQMD.

Less than Significant Impact.

Construction Impacts

Construction activities associated with remediation and construction activities would result in emissions of GHGs. GHG emissions occurring during the construction phase are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, vendor trips, and worker commuting trips. Construction GHG emissions were calculated concurrently with air quality criteria pollutant emissions by using CalEEMod. The results are output in MTCO₂e for each year of construction.

GHG emissions generated from construction activities are finite and occur for a relatively short-term period of time. Unlike the numerous opportunities available to reduce a project’s long-term GHG emissions through design features, operational restrictions, use of green-building materials, and other methods, GHG emissions-reduction measures for construction equipment are relatively limited. Therefore, SCAQMD staff members recommended that construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures would address construction GHG emissions as part of the operational GHG reduction strategies (SCAQMD 2008).

As shown in Table 10, Estimated Annual Greenhouse Gas Emissions from Construction, the 30-year amortized construction emissions would be 19 MTCO₂e/yr.

¹ The plan must (a) quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area; (b) establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable; (c) identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area; (d) specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level; (e) establish a mechanism to monitor the plan’s progress toward achieving the level and to require amendment if the plan is not achieving specified levels; and (f) be adopted in a public process following environmental review (State CEQA Guidelines Section 15183.5).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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**TABLE 10
ESTIMATED ANNUAL GREENHOUSE GAS EMISSIONS
FROM CONSTRUCTION**

Year	Emissions (MTCO ₂ e)
2022	437
2023	143
Total	580
Amortized Annual Emissions*	19
MTCO ₂ e: metric tons of carbon dioxide equivalent * Combined total amortized over 30 years Totals may not add up due to rounding Source: CalEEMod data in Appendix A.	

Operational/Total Impacts

Operational GHG emissions attributed to the Project include natural gas use; purchased electricity; the electricity embodied in water consumption; the energy associated with solid waste disposal; and mobile sources. Operational GHG emissions were calculated concurrently with air quality criteria pollutant emissions by using CalEEMod, which incorporates mitigation measures based on the California Air Pollution Control Officers Association publication Quantifying Greenhouse Gas Mitigation Measures (CAPCOA 2010).

As shown in Table 11, Estimated Annual Operational and Amortized Greenhouse Gas Emissions, the annual GHG emissions would be 1,336 MTCO₂e/yr. Project related GHG emissions would be less than the SCAQMD’s interim draft significance threshold of 3,000 MTCO₂e/yr and consequently would result in less than significant GHG impacts.

**TABLE 11
ESTIMATED ANNUAL OPERATIONAL AND
AMORTIZED GREENHOUSE GAS EMISSIONS**

Source	Emissions MTCO ₂ e/yr
Area sources	28
Energy sources	218
Mobile sources	1,010
Solid waste	25
Water	35
Amortized construction emissions (Table 10)	19
Project Total	1,336
MTCO ₂ e/yr: metric tons of carbon dioxide per year. Totals may not add up due to rounding Note: Detailed calculations in Appendix A.	

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Response:

No Impact. As discussed above, the principal State plan and policy adopted for the purpose of reducing GHG emissions is AB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020. SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations. SB 375 requires Metropolitan Planning Organizations to adopt a Sustainable Communities Strategy (SCS) or alternative planning strategy that will address land use allocation in that Metropolitan Planning Organization’s RTP. The principles of SB 375 are incorporated in SCAG’s adopted 2020 RTP/SCS.

The Project is a housing development project and would increase population within the City and increase VMT. As discussed previously, the Project would also not result in substantial amounts of GHG emissions from either the construction or operations phase and would result in emissions which are below the SCAQMD’s interim draft significance thresholds.

Section 4.3 of the City’s CAP discusses residential uses and mentions “The General Plan 2040 seeks to provide a range of new housing suited to people of all ages and income levels throughout Moreno Valley, with an emphasis on increasing the diversity of housing types in the community and promoting construction of multi-family and mixed-use residential development in infill areas near employment and shopping and well-served by transit and public facilities.” The Project is consistent with the General Plan 2040’s goal of providing multi-family residential uses representing a unique housing product type within the City, that is an alternative to single family detached homes on fee lots. The facilities on the Project Site would be built in compliance with the 2019 California Building Code and the 2019 CALGreen Code, or latest codes, which adopted for the purpose of reducing GHG emissions.

As shown in Table 11, the Project would result in emissions which are below the SCAQMD’s draft interim significance threshold for GHG emissions. In addition, the Project would also incorporate the latest energy efficiency requirements detailed in the State of California’s Title 24 green building standards (**RR ENE-2**). The Project would install electric vehicle infrastructure as required by the Title 24 building standards, and the City’s CAP (as stipulated in **RR ENE-3**). Therefore, the Project would not conflict with the goals established within the abovementioned plans, policies, or regulations adopted for the purpose of reducing GHG emissions. There would be no impact, and no mitigation measures are required.

Mitigation Program

Regulatory Requirements:

RR ENE-1 The Project must be designed in accordance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.

RR ENE-2 The Project is subject to the California Green Building Standards Code (CALGreen) (CCR, Title 24, Part 11). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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RR ENE-3 The Project shall comply with applicable policies of the Moreno Valley Climate Action Plan by complying with meeting the following policies:

1. Require new multi-family residential development to reduce the need for external trips by providing useful services/facilities on-site such as electric vehicle infrastructure. **(Policy TR-9)**
2. incentives such as streamlined permitting or bonus density for new multi-family buildings and reroofing projects to install “cool” roofs consistent with the current California Green Building Code (CALGreen) standards for commercial and industrial buildings. **(Policy R-1)**
3. Require new construction and major remodels to install interior real-time energy smart meters in line with current utility provider (e.g. MVU, SCE) efforts. **(Policy R-2)**
4. Reduce emissions from heavy-duty construction equipment by limiting idling based on South Coast Air Quality Management District (SCAQMD) requirements and utilizing cleaner fuels, equipment, and vehicles.
 - a. Require provision of clear signage reminding construction workers to limit idling
 - b. Require project applicants to limit GHG emissions through one or more of the following measures:
 - i. substitute electrified or hybrid equipment for diesel/gas powered equipment
 - ii. Use alternative fueled equipment on site
 - iii. Avoid use of on-site generators. **(Policy OR-2)**

IX. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. The Project would not involve the routine use, transport, handling, or storage of hazardous materials on-site. The proposed land uses are limited to residential, and no industrial or manufacturing land uses would be developed which routinely utilize hazardous materials. The Project would result in the on-site handling of materials that are common in similar residential developments, such as commercial cleansers, solvents and other janitorial or industrial-use materials; paints; and landscape fertilizers/pesticides. While many such common materials are technically labeled “hazardous”, the presence of such materials is common in a suburban environment and their transport and use is considered a less than significant impact. The Project would not generate hazardous emissions, nor would it involve hazardous materials that would create a substantive hazard to the public or environment.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. Project construction activities routinely involve the use and handling of limited volumes of commonly used hazardous materials, such as petroleum (fuel), paints, adhesives, and solvents. During construction, there is a limited risk of spills and/or accidental release of hazardous

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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materials that are used for the operation and maintenance of construction equipment. The on-site temporary handling, storage, and usage of these materials would be subject to applicable local, State, and/or federal regulations.

Based on the Department of Toxic Substances Control (DTSC) Envirostor web mapper, there is one hazardous waste site nearby, the March Air Force Base Rifle Range. The Rifle Range formerly included land east of the Project Site, and this property is now classified as a Formerly Used Defense Site (FUDS), and requires evaluation by the USACE for further action (DTSC 2021). The FUDS program was established to protect human health and the environment by investigating and, if required, cleaning up potential contamination or munitions that may remain on FUDS properties from past Department of Defense activities. At one time, the Rifle Range was approximately 648 acres, most of which was leased. According to documentation prepared by the USACE, the Rifle Range site has since been entirely redeveloped as residential and commercial uses (USACE 1994). Therefore, the Rifle Range site would pose no risk to the Project Site. Less than significant impacts would result related to this threshold, and no mitigation is required.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. Seneca Elementary School (11615 Wordsworth Road) is located approximately 0.24 mile south of the Project Site. However, as discussed above under Threshold IX(a), the Project would not develop land uses that involve the use, storage, or transport of hazardous materials that represent a significant hazard to the public or the environment. During Project operations the Project would result in the routine on-site handling of materials that are common in similar developments, such as commercial cleansers, solvents and other janitorial or industrial-use materials; paints; and landscape fertilizers/pesticides. As noted above, hazardous materials utilized during Project construction would be stored, transported, and used according to applicable regulations and ordinances. Therefore, the Project would result in less than significant impacts related to this threshold, and no mitigation is required.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, will it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. Section 65962.5 requires the development of a hazardous waste and substances site list, also known as the Cortese List, which provides the location of known hazardous materials release sites. According to the EDR Radius Map prepared in 2021 and included as Appendix G (EDR 2021), as well as a search of the DTSC, which consists of a search of selected government databases for potential environmental concerns in the vicinity of the Project Site (e.g., "listed sites"), no Cortese List properties occur within the Project Site. Therefore, no impact would result from implementation of the Project, and no mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. The Project Site is located approximately 3.95 miles north of March Air Reserve Base. As such, the Project is within Airport Compatibility Zone E of the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan. Within this zone, residential density and non-residential intensity are not restricted. There are no other private airstrips in the vicinity of the Project. Based on a review by the ALUC Director, the Project was found to be consistent with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, with implementation of standard conditions included in the letter to avoid and minimize potential impacts to aircraft related to lighting, glare, and bird strikes (ALUC 2020). These avoidance measures have been incorporated as part of the Project and include **PDF HAZ-1** through **PDF HAZ-4**, and regulatory requirement **RR AES-1**. Therefore, the Project would result in less than significant impacts and no mitigation is required.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant With Mitigation. The City's Local Hazard Mitigation Plan (May 2017) is designed to identify hazards, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term natural or man-made hazard risks to human life and property for the City of Moreno Valley and its residents. The Project would not conflict with any of the mitigation strategies listed within Chapter 20 of the Local Hazard Mitigation Plan (May 2017). Also, the City has an Emergency Operations Plan (March 2009), which provides the City with guidance on the response to extraordinary emergency situations associated with natural, man-made and technological disasters. The Project would not conflict with or impair implementation of this plan. Finally, the Moreno Valley Utility (MVU) has adopted a Wildfire Mitigation Plan (February 2021), which describes the safety-related measures that MVU follows to reduce its risk of causing wildfires. The Project is approximately 0.72-mile from the nearest evacuation route, Box Springs Road, identified in the Western Riverside County Vulnerability Assessment by Resilient IE, a collaboration between Western Riverside Council of Governments (WRCOG) and the San Bernardino County Transportation Authority, with funding from Caltrans (Resilient IE 2020). The Project would result in additional traffic on local roadways during construction and once the Project is constructed; however, this additional traffic would not substantially degrade level of service in a manner that would impair implementation or otherwise interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, less than significant impacts would result related to this threshold, and no mitigation is required.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project Site, as well as much of the northern and eastern portions of the City of Moreno Valley, is subject to wildland fires. The Project Site is located within and adjacent to a Fire Hazard Severity Zone (FHSZ). The Project would be constructed in compliance with the Fire Code,

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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California Building Code, and the objectives, policies, and programs of the City’s General Plan (2021b). Also, the Project includes the establishment and ongoing maintenance of fuel modification zones along the northern and eastern boundaries of the Project Site, as shown in the Fire Hazard Analysis and Approach memorandum (Appendix L) that was prepared for the Project. Given the above considerations, the Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts would be less than significant and no mitigation is required.

Mitigation Program:

Project Design Features

PDF HAZ-1: The Project’s proposed basins would be designed and maintained to provide for a maximum 48-hour detention period following the design storm, and to remain totally dry between rainfalls.

PDF HAZ-2: Vegetation in and around the basins that would provide food or cover for birds would be incompatible with airport operations and shall not be utilized in Project landscaping. Trees shall be spaced so as to prevent large expanses of contiguous canopy, when mature. Landscaping in and around the basins shall not include trees or shrubs that produce seeds, fruits, or berries. Landscaping in the basins, if not rip rap, would be in accordance with the guidance provided in ALUC “Landscaping Near Airports” brochure, and the “Airports, Wildlife, and Stormwater Management” brochure available at RCALUC.org which lists acceptable plants from the Riverside County Landscaping Guide or other alternative landscaping as may be recommended by a qualified wildlife hazard biologist.

PDF HAZ-3: A notice shall be permanently affixed to the fencing surrounding the basins with the language similar to the following: “There is an airport nearby. This stormwater basin is designed to hold stormwater for only 48 hours and to not attract birds. Proper maintenance is necessary to avoid bird strikes.” This sign would also include the name, telephone number, or other contact information of the person or entity responsible for monitoring and maintain the basins.

PDF HAZ-4: Prior to close of escrow on the Project’s future proposed homesites, the “Notice of Airport in Vicinity” that was attached to the ALUC’s 2020 Airport Land Use Commission (ALUC) Development Review – Director’s Determination letter shall be provided to all prospective purchasers and occupants of the Project.

Regulatory Requirement:

RR AES-1 The Developer shall prepare a Lighting Plan that provides the type and location of proposed exterior lighting and signage, subject to the review and approval of the City’s Development Services Department. All new lighting shall be shielded and down-cast, such that the light is not cast onto adjacent properties or visible from above.

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. This section discusses the Project’s potential construction- and operational-related water quality impacts.

Construction-Related Water Quality Impacts

The Project could result in short-term construction impacts to surface water quality from demolition, grading, and other construction-related activities. Storm water runoff from the Project Site during construction could contain soils and sediments from these activities. Also, spills or leaks from heavy equipment and machinery, construction staging areas, and/or building sites can also enter runoff and typically include petroleum products such as fuel, oil and grease, and heavy metals.

The SWRCB has issued the Statewide NPDES General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No 2012-0006-DWQ, NPDES No. CAS000002, adopted by the SWRCB on July 17, 2012). Under this Construction General Permit, individual NPDES permits or Construction General Permit coverage must be obtained for discharges of storm water from construction sites with a disturbed area of one or more acres. Since the development area within the Project Site is 16.59-acres, coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity is required. To obtain coverage, the Developer must retain the services of a certified Qualified SWPPP Developer to prepare a SWPPP for the Project. The Developer, or the contractor if specifically delegated, would electronically submit permit registration documents prior to beginning construction activities in the Storm Water Multi-Application Report Tracking System, which would consist of a Notice of Initiation, Risk Assessment, Post-Construction Calculations, a site map, the SWPPP, a signed certification statement, and the first annual fee. Project construction would also adhere to the South Coast Air Quality Management District’s Rule 402 (Nuisance) and Rule 403 (Fugitive Dust) to avoid and minimize dust from leaving the site.

Construction activities are not anticipated to encounter groundwater, as levels are anticipated to be more than 73 feet below ground surface at the Project Site (LGC Geo-Environmental, Inc 2018a), which is well below the depth of proposed excavation.

Adherence to applicable regulatory requirements would ensure that Project short-term impacts to surface water quality during construction would be less than significant, and no mitigation is required.

Operational Water Quality Impacts

The Project is located in the Santa Ana River Basin. Specifically, the Project Site drains to Box Springs Canyon, which drains to Tequesquite Arroyo, then to Santa Ana River Reach 3, and then to Prado Flood Control Basin. The SWRCB maintains the 303(d) List of Impaired Water Bodies, which identifies water bodies where water quality indicators exceed acceptable thresholds. The Project Sites does not directly drain to 303(d)-listed impaired water body; however, the Santa Ana River Reach 3 has 303(d) listed impairments for indicator bacteria, copper, and lead, and the Prado Flood Control Basin has impairments for pH (acidity and alkalinity) (UEG 2022a). The Santa Ana RWQCB develops and implements total maximum daily loads to address water quality impairments and help achieve water quality standards. Water quality is also governed through NPDES stormwater discharge permits issued to municipalities, construction sites, and industrial facilities to control non-point-source pollutants in stormwater discharges to surface waters.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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According to the Project Specific Water Quality Management Plan, provided as Appendix I, general pollutants that may result from Project operations, which are also known as project priority pollutants of concern, include bacterial indicators, nutrients, pesticides, sediments, trash and debris, and oil and grease (UEG 2022a). As detailed in the Project Description and shown on Figure 6, two combination detention and bioretention basins (e.g., Basins A and B) have been incorporated into the Project design based on the recommendations of the Project Specific Water Quality Management Plan to minimize impacts related to stormwater quality and increased stormwater volumes generated from Project implementation. Detention basins are impoundments or excavated basins for the short-term detention of stormwater runoff. Bioretention basins are landscaped depressions or shallow basins that are used to slow and treat on-site stormwater runoff. Under developed conditions, stormwater would be directed to the basins and would then percolate through the basins where it would be treated by a number of physical, chemical, and biological processes. The Project’s basins would slow and clean the water before allowing it to flow downslope into existing off-site earthen drainage channels. Basin overflows have been designed to connect downstream to two natural drainage courses, similar to pre-Project conditions. Therefore, construction and operation of these basins would adequately treat stormwater runoff and a less than significant impact would occur; no mitigation would be required.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project would not involve direct or indirect withdrawals of groundwater. Domestic water service would be provided by Eastern Municipal Water District (EMWD); EMWD has managed groundwater quantity and quality in the western portion of the San Jacinto Groundwater Basin via the West San Jacinto Groundwater Management Plan since 1995. Also, EMWD prepares annual reports documenting the implementation of the plan and activities in groundwater management zones (EMWD 2021). In addition to the existing groundwater management program, EMWD was required to complete a Groundwater Sustainability Plan (GSP) by January 2022, which they did in September 2021. Under the State Groundwater Management Act, each high and medium priority basin, as identified by the California Department of Water Resources, is required to have a Groundwater Sustainability Agency (GSA) that will be responsible for groundwater management and development of a GSP. The EMWD Board of Directors is the GSA for the West San Jacinto Groundwater Basin, which underlies the Project Site, and is responsible for development and implementation of a GSP. The Project would not conflict with or impair implementation of the Groundwater Sustainability Plan for the San Jacinto Groundwater Basin (EMWD 2021b). Therefore, the Project would not substantially decrease groundwater supplies.

Additionally, the Project would not interfere substantially with groundwater recharge as the Project Site has limited to no infiltration potential (UEG 2022a). Furthermore, the drainage feature in the southern portion of the Project Site as well as 15.97 acres of the 32.56-acre Project Site would not be developed and would remain pervious. Therefore, although the Project would result in the addition of approximately 436,885 square feet of impervious surfaces there would be minimal change in groundwater recharge, less than significant impacts would result, and no mitigation is required (UEG 2022a).

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which will:				
i) Result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. As described above in response to threshold X(a), the Project has the potential to result in erosion and siltation during construction. Development and implementation of a SWPPP for the Project would ensure potential effects related to erosion and siltation are reduced to less than significant levels during construction. Also, as discussed above under threshold X(a), two combination detention and bioretention basins (e.g., Basins A and B) and associated drainage infrastructure, including rip rap, have been incorporated in the Project’s design, which would reduce potential for erosion and siltation during Project operations. Given these considerations, less than significant impacts would result from the Project and no mitigation is required.

ii) Substantially increase the rate or amount of surface runoff in a manner which will result in flooding on- or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Create or contribute runoff water which will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. The Project would result in the addition of approximately 436,885 square feet of impervious surfaces, which would result in a total of 65 percent impervious surface coverage (UEG 2022a). Although there is limited infiltration ability within the Project Site in existing conditions due to soil types and other conditions, the addition of impervious surface has the potential to permanently increase the runoff potential from the Project. Therefore, as described above in response to threshold X(a), the Project has incorporated stormwater drainage systems, as well as two combination detention and bioretention basins (e.g., Basins A and B), which would convey, retain, and treat stormwater prior to it being conveyed off-site along natural drainage courses. Basin overflows have been designed to connect downstream to two natural drainage courses, similar to pre-Project conditions. Therefore, less than significant impacts would result related to these thresholds, and no mitigation is required.

iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Flood Insurance Rate Maps (Panel 06065C0733G) for this subject property shows that the site falls within Zone X. Zone X denotes areas determined to be “Areas of Undetermined Flood Hazard” (UEG 2022b). However, the Project Site is located at a high elevation relative to natural nearby drainage courses that are typically associated with flooding. Minor ephemeral drainages, which flow only in direct response to precipitation and for short periods of time, traverse the Project Site in existing conditions. The Project would provide drainage improvements to receive, convey, detain, and treat stormwater within the Project Site, as well as curbs and gutters on proposed streets that would protect the site from offsite flows. Onsite runoff would be conveyed to two combination detention and bioretention basins (e.g., Basins A and B) using an onsite storm drain system of inlets, pipes, channels, and curb cuts. Basin overflows have been designed to connect downstream to two natural drainage courses, similar to

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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pre-Project conditions. Therefore, the Project would provide adequate drainage and conveyance within the site and impacts to flood flows would be less than significant; no mitigation is required.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. As noted above in response to threshold X(c)(iv), the Project Site’s flood potential has not been determined by prior studies; however, due to the physical location and Project improvements, there would be minimal risk of on- or off-site flooding that would result from the Project. The Project is not near the ocean or other water body with the potential to be at risk of seismically-induced tidal phenomena. Furthermore, the Project would not utilize, store, or otherwise contain pollutants that would be at risk of release if inundated. Therefore, hazards related to the potential release of pollutants due to inundation caused by a flood, tsunami, and/or seiche are considered to be negligible. A less than significant impact would result from the Project related to this threshold, and no mitigation is required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The RWQCB prepares and maintains the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). The Basin Plan sets water quality standards in the Santa Ana River Basin by establishing beneficial uses for specific water bodies and designating numerical and narrative water quality objectives. The Basin Plan sets water quality objectives for the Project Site and its surrounding areas. Water quality thresholds identified in the Basin Plan are intended to reduce pollutant discharge and ensure that water bodies are of sufficient quality to meet their designated beneficial uses. The Project would not conflict with the water quality standards outlined in the Basin Plan or worsen water quality conditions in any 303(d)-listed water body. As discussed above in response to threshold X(a), pollutant discharge during construction would be avoided through compliance with the Construction General Permit including the preparation and implementation of a SWPPP. Once the Project is constructed, the Project would consist of a residential development. Pollutants generated during Project operations would be treated using two bioretention basins. Therefore, the Project would not be a source of pollutants for downstream water bodies and the Project would thereby not conflict with the Basin Plan.

As discussed previously in response to threshold X(b), a GSP was approved by EMWD in 2021, which establishes sustainability indicators for the groundwater basin. The Project would not directly conflict with the Sustainable Management Criteria, Projects and Management Actions, or Plan Implementation chapters of the GSP plan (EMWD 2021b). Therefore, less than significant impacts would result from the Project, and no mitigation is required related to this threshold.

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Response:

No Impact. The Project Site is vacant and is located at the northernmost portion of Morton Road where residential uses are currently established. As such, the Project does not physically divide the established community to the south. Additionally, there are roads or trails that connect any established communities at the Project Site. Under the Project, residential uses in the development immediately south of the Project Site would have the same vehicular, bicycle, and pedestrian access along Morton Road as during existing conditions. Therefore, the Project would result in no impacts related to this threshold, and no mitigation is required.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

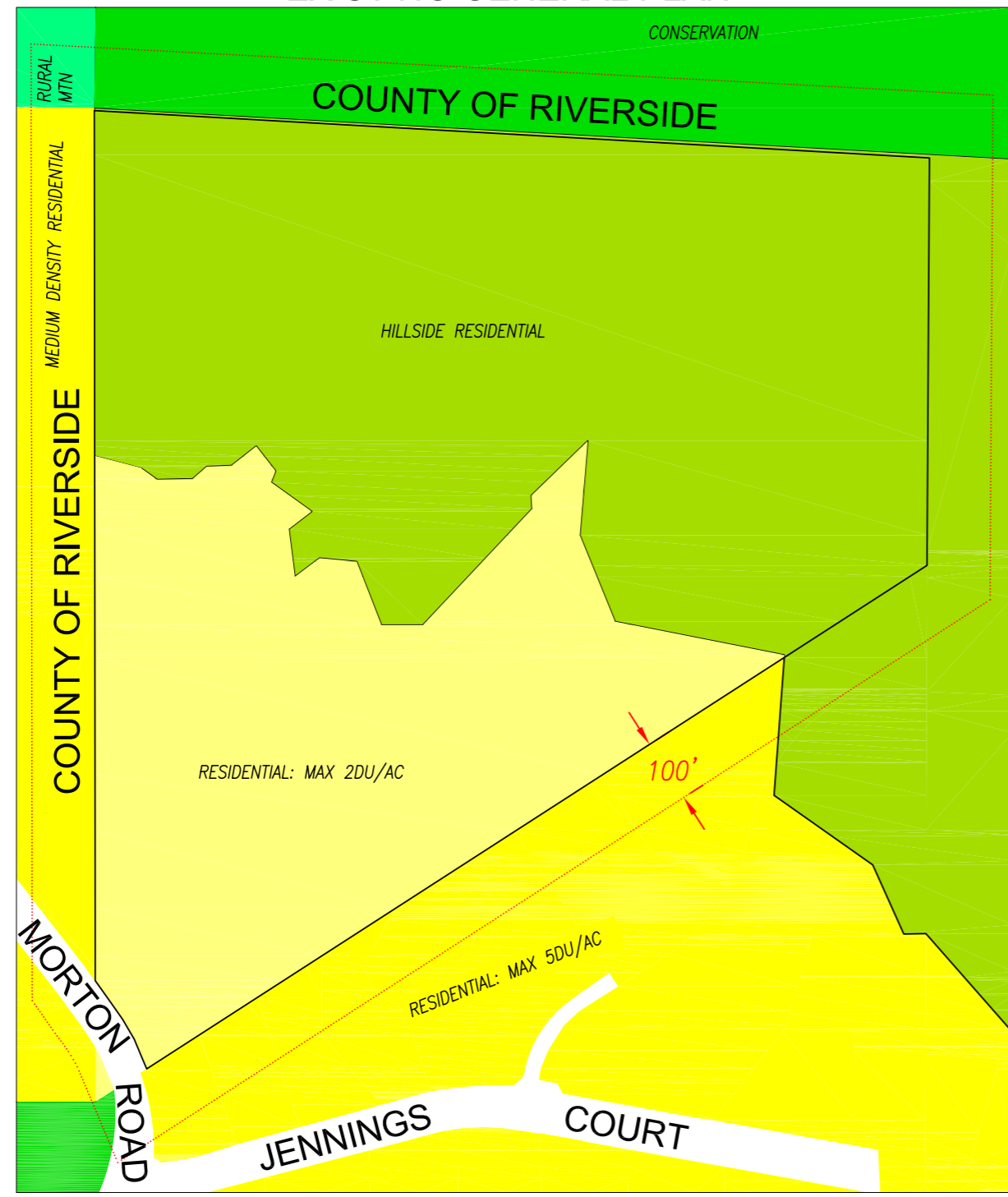
Less Than Significant Impact. The Project has been designed to be consistent with the R10 and OS general plan land use designations, the R10 and OS zoning districts (development standards), and the allowable development density permitted by those designations. The Project would require a General Plan Amendment to amend the City of Moreno Valley General Plan Land Use Map to change the land use designation for the Project Site from “Residential 2 (R2)” and “Hillside Residential (HR)” to “Residential 10 (R10)” and “Open Space (OS)” designations. The Project would also require a change of Zone to amend the City of Moreno Valley Zoning Map to change the zoning designation for the Project Site from “Residential 2 (R2) District” and “Hillside Residential (HR)” to “Residential 10 (R10)” and “Open Space (OS) zones. Existing and proposed land use designations and zoning for the Project Site are provided in Figures 7 and 8 respectively.

A Planned Unit Development (PUD) has been prepared for the Project (UEG 2022c, Appendix J). The PUD describes the overall design concept for the Project as well as design standards and guidelines. By implementing the following design points that have been incorporated into Project Design, this Project meets these City design objectives for PUDs:

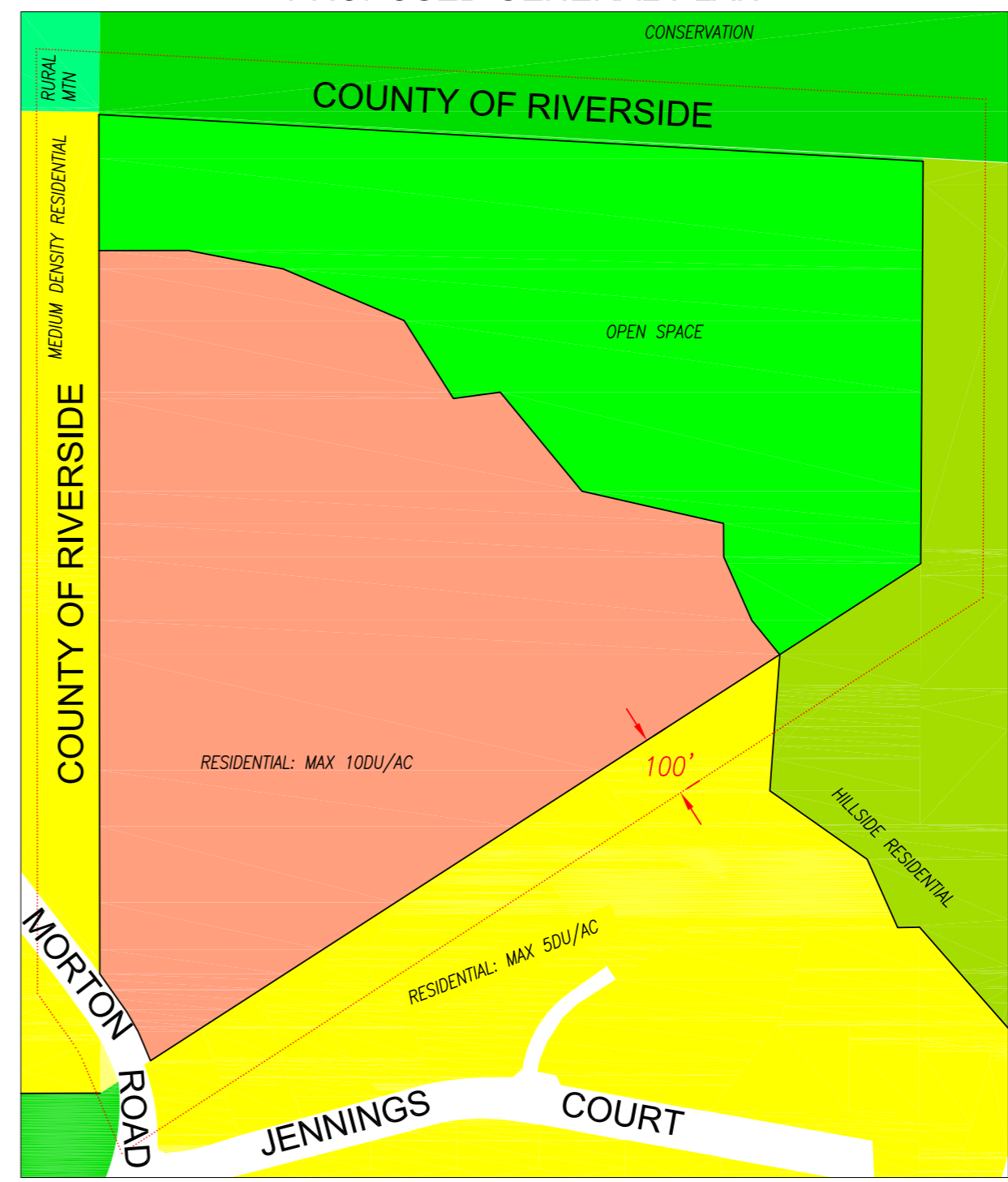
- Provides innovation and diversity in housing choices that would not otherwise be possible according to the strict application of the site development regulations in this title because the detached condominium concept provides its residents with the benefits of single-family homeownership while also conferring on them the benefits of shared community living.
- Provides access to adjacent natural resources, open space, onsite recreational facilities through the dedication of nearly one-half of the property to open space that will interconnect with a regional trail system.
- Installation of storm water pollution control systems pursuant to the municipal storm water permit issued by the RWQCB.

According to the PUD, the Project is intended as a planned residential community offering innovative cluster housing options in the lower lying portion of the site and open space on the remainder of the site. The development would include a community park, open space, and a common community design identity. This development plan coupled with the unique location of this property would provide multiple housing alternatives for both entry-level buyers, young families, and retirees, as well as student and faculty for the University of California-Riverside.

EXISTING GENERAL PLAN



PROPOSED GENERAL PLAN



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Source: United Engineering Group, 2022

Land Use Map

Gateway Heights Project

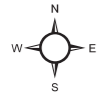
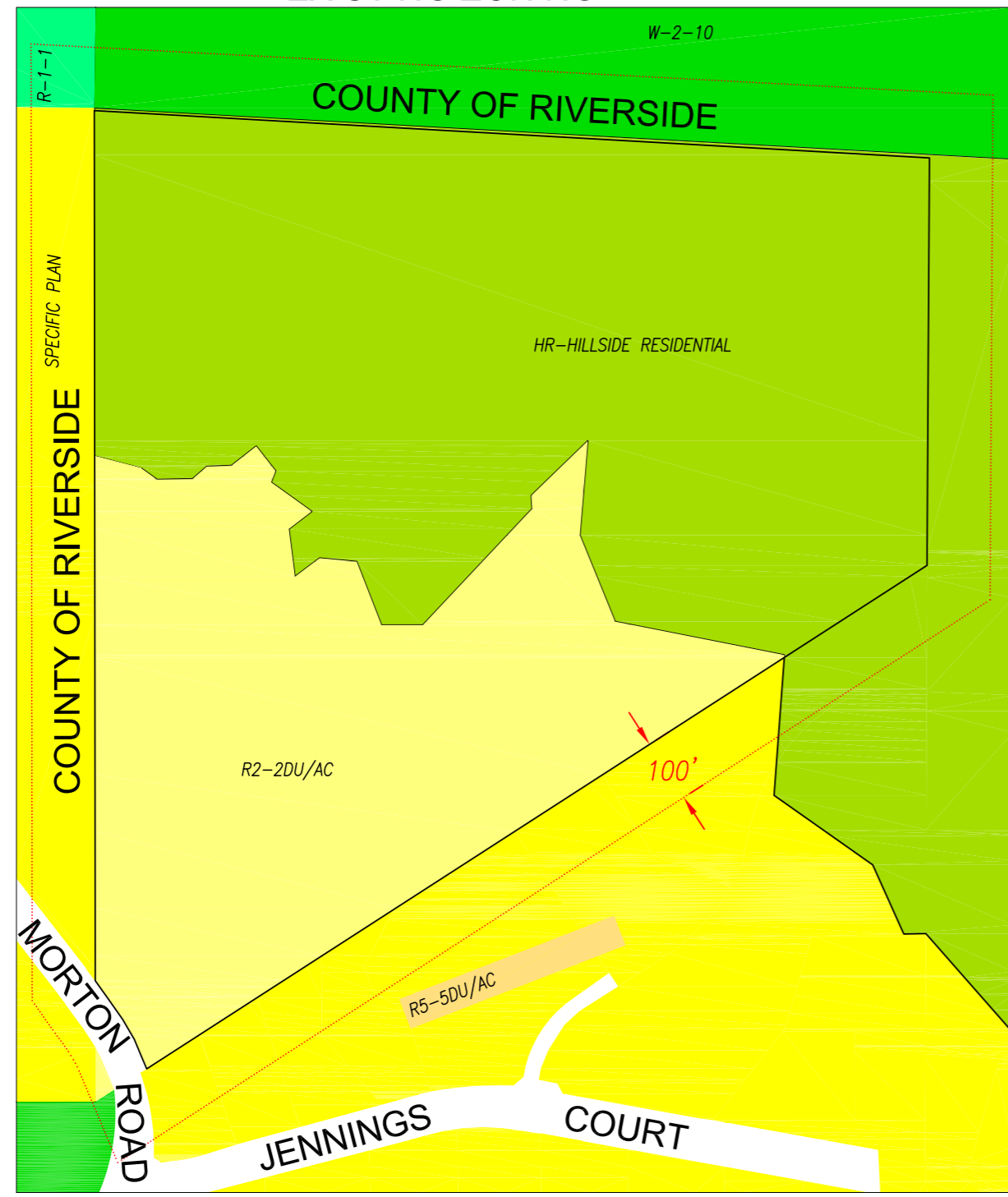


Figure 7

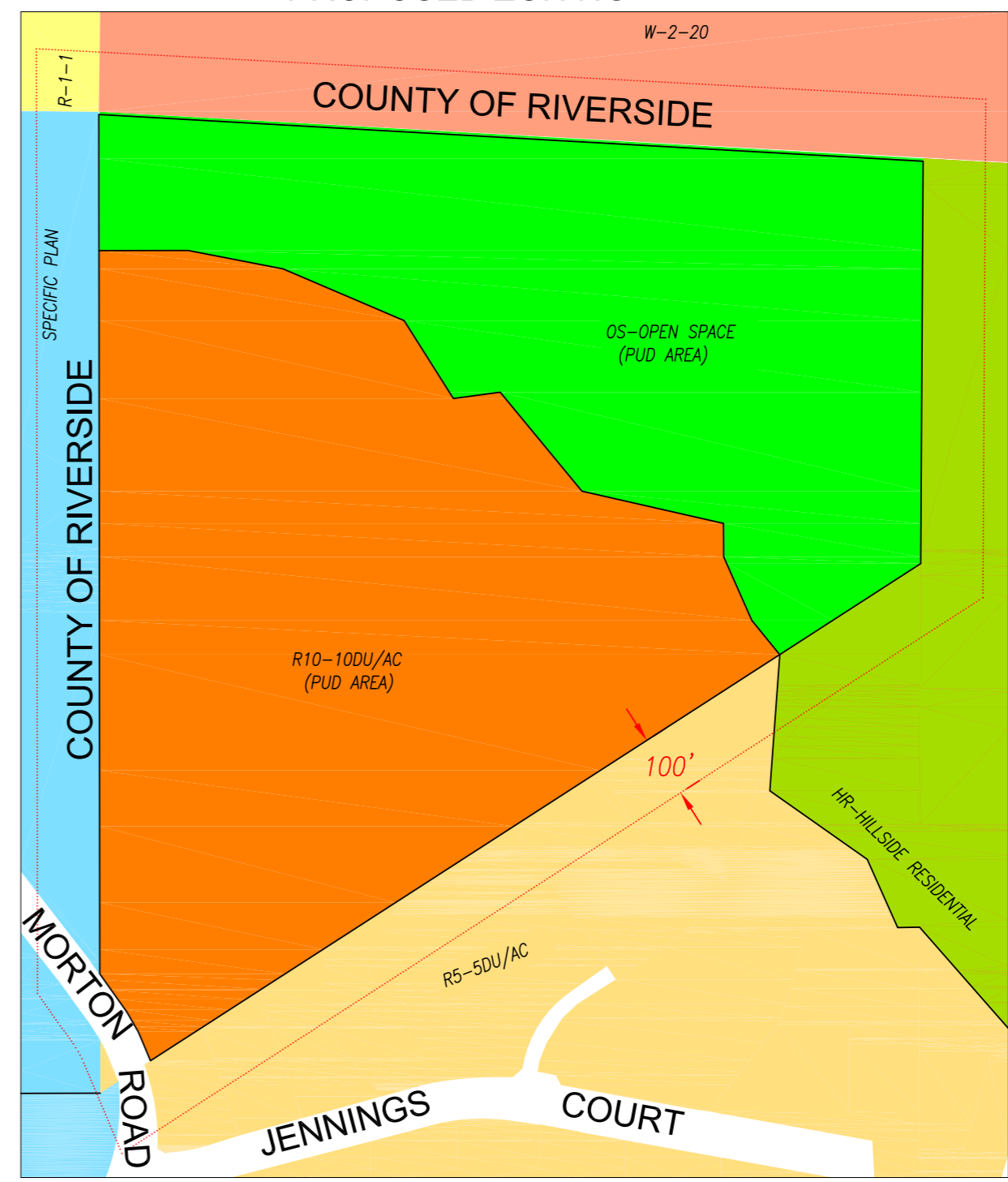


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EXISTING ZONING



PROPOSED ZONING



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Source: United Engineering Group, 2022

Preliminary Zoning Map

Gateway Heights Project

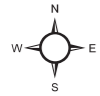


Figure 8



(12/22/2022 MMD) R:\Projects\3ZHE\0100\Graphics\ISMND\lex_Zoning.pdf

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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The R10 (Residential 10) district designated area of the Project Site would total 16.59 acres of the 32.56 acre property and would contain 108 units, with a density of 6.51 units per acre. This density is well within allowances of the proposed General Plan designation of R10 (10 units per net acre). The remaining 16.10 acres would be changed to OS and designated for conservation. In addition to the open space, the Project would also provide a community park located in the center of the development.

The residential uses within the Project would consist of cluster units in varying sizes ranging from 4-unit to 10-unit clusters. This development would be subject to the requirements in Chapter 9.03.040 (Residential Site Development Standards) and 9.03.060 (Planned Unit Developments) of the City of Moreno Valley's municipal code. The introduction of a multifamily residential housing product type at the urbanized edge of the City's residential neighborhoods that currently abuts a hillside / open space area, represents an incompatibility issue, when viewed from traditional planning transects theory, which is defined as a series of zones that transition from sparse rural areas to the dense urban core of a city. It typically associates multifamily residential as an appropriate "buffer zone" between low-density residential areas and commercial/mixed use areas. Here, the Project proposes a multifamily residential project adjacent to the rural / open space edge and away from the city core or area of intensity (i.e., near the 60 Freeway / Railroad areas to the south). However, this pattern of urban development will likely change in the future due to the adopted Gateway Center Specific Plan (GCSP), located within Unincorporated Riverside County on the west side of Morton Road. The GCSP is a 317-acre mixed-use master-planned community that will introduce medium and high-density residential neighborhoods around a business park / commercial office / regional commercial centers closer to the SR-60 Freeway/ Railroad rights-of-way. The GCSP will introduce medium density residential uses at five (5) dwelling units per acre immediately adjacent to the Project Site, on the west side of Morton Road. As such, the subject Project's proposed Planned Unit Development density of 6.51 units per acre on the 16.59-acre portion would be compatible with future land development patterns in the larger vicinity. Therefore, with the approval of the General Plan Amendment and Zone Change described above for the Project, less than significant impacts would result related to zoning and land use designations.

Also, the City's General Plan EIR Land Use chapter lists the following plans and policies as having been adopted for the purpose of avoiding or mitigating an environmental effect: the City of Moreno Valley Municipal Code; Specific Plans including the City of Moreno Valley Redevelopment Plan, the Western Riverside County MSHCP, the Air Installation Compatible Use Zone (AICUZ) Study, and the SCAG Regional Plan; the SCAG Growth Management Plan, and the WRCOG Sub-Regional Comprehensive Plan. An analysis of how the Project relates to each of these related plans and policies is provided below in Table 12.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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**TABLE 12
ANALYSIS OF CONSISTENCY WITH PLANS, POLICIES, AND ORDINANCES**

Plan, Policy, or Ordinance	Consistency Analysis
Section 9.03.040 of the Moreno Valley Municipal Code	Section 9.03.040 of the Moreno Valley Municipal Code provides general site development standards for residential uses. As noted above, the Project proposes a General Plan Amendment and a Change of Zone. The City's design review would ensure that the Project is fully compliant with the development standards for the proposed zones within the Project Site.
Moreno Valley Specific Plans	The Project Site is not located in any local Specific Plans as designated in the General Plan. However, there is an adopted GCSP as explained above that will introduce medium-density residential uses at 5 du/acre to the west of Morton Road.
Moreno Valley Redevelopment Plan	The Project is not subject to the Moreno Valley Redevelopment Plan.
Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)	The Project Site is not located in any MSHCP Criteria Area or Area Plan subunit. The Project area is located within a predetermined Survey Area for narrow endemic plant species and for burrowing owl. Surveys were conducted in 2021 and no targeted plant species or burrowing owl were found within the Project Site. The Project Site does not occur within or adjacent to an MSHCP Core, Linkage, Constrained Linkage, or Non-Contiguous Habitat Block. Therefore, an Urban/Wildland Interface analysis pursuant to Section 6.1.4 of the MSHCP is not required. Riparian/riverine features occur within the Project Site, which would be impacted by the Project. Therefore, a DBESP was prepared and has been reviewed and approved by the RCA to ensure compliance with the requirements of the MSHCP (Dudek 2022b).
March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan	As described in response to threshold IX(e), based on a review by the ALUC Director, the Project was found to be consistent with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, with implementation of standard conditions included in the letter to avoid and minimize potential impacts to aircraft related to lighting, glare, and bird strikes (ALUC 2020). Therefore, the Project would result in less than significant impacts and no mitigation is required.
SCAG Regional Plan and Growth Management Plan	The Project is internally consistent with the City's General Plan which assumed a low-density residential development on the overall 32.56-acre site and the Project will be developed using a clustered housing pattern on a 16.59-acre portion of the site (3.32 du/acre on the overall 32.56-acre site). Therefore, the Project would not conflict with the SCAG Regional Plan or Growth Management Plan.
WRCOG Sub-Regional Comprehensive Plan	During review of the Project, City staff would ensure that the Project complies with regional goals and objectives of the WRCOG Sub-Regional Comprehensive Plan; therefore, the Project would not conflict with this plan.
Source: Psomas 2021.	

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Because the Project would not conflict with any of these plans or policies, the Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Less than significant impacts would result from the Project related to this threshold, and no mitigation is required.

XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that will be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Response:

No Impact. According to the Environmental Impact Report prepared for the City of Moreno Valley General Plan (Moreno Valley 2021c), there are no regionally or statewide significant mineral resources located within the City. Therefore, no impacts would result related to these thresholds, and no mitigation is required.

XIII. NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less than Significant Impact. Sound pressure levels are described in decibel (dB), which are units measured on a logarithmic scale. A doubling of the energy of a noise source (such as doubling of traffic volume) would increase the noise level by 3 dB. The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale was devised; the A-weighted decibel scale (dBA) approximates the frequency response of the average healthy ear when listening to most ordinary everyday sounds and is used in this analysis.

Human perception of noise has no simple correlation with acoustical energy. Due to subjective thresholds of tolerance, the annoyance of a given noise source is perceived very differently from person to person. The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at 3 feet is approximately 60 dBA, while loud jet engine noises at 1,000 feet equate to 100 dBA, which can cause serious discomfort.

Several rating scales (or noise “metrics”) exist to analyze the effects of noise on a community. These scales include the equivalent noise level (Leq) and the community noise equivalent level (CNEL). Average noise levels over a period of minutes or hours are usually expressed as dBA Leq, which is the equivalent noise level for that period of time. The period of time averaging may be specified; Leq(3) would be a 3-hour average. When no period is specified, a one-hour average is assumed. Noise of short duration (i.e., substantially less than the averaging period) is averaged into ambient noise during the period of interest. Thus, a loud noise lasting many seconds or a few minutes may have minimal effect on the measured sound level averaged over a one-hour period.

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To evaluate community noise impacts, CNEL was developed to account for human sensitivity to nighttime noise. CNEL represents the 24-hour average sound level with a penalty for noise occurring at night. The CNEL computation divides a 24-hour day into three periods: daytime (7:00 AM to 7:00 PM), evening (7:00 PM to 10:00 PM), and nighttime (10:00 PM to 7:00 AM). The evening sound levels are assigned a 5-dBA penalty, and the nighttime sound levels are assigned a 10-dBA penalty prior to averaging with daytime hourly sound levels.

Construction Noise

The City regulates construction noise through Section 8.14.040(E) and through Noise regulations contained in 11.80.030(D)(7) of the Municipal Code by limiting construction activities to 7:00 AM to 7:00 PM from Monday through Friday excluding holidays and from 8:00 AM to 4:00 PM on Saturdays. Construction is not permitted on Sundays or holidays. The City’s Noise Ordinance prohibits any person from operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee.

Future development implemented under the Project could result in a temporary ambient noise increase due to construction activities. Construction noise typically occurs intermittently and varies depending upon the nature or phase of construction (e.g., demolition; land clearing, grading, and excavation; erection). Construction noise would be short term and would include noise from activities such as site preparation, truck hauling of material, pouring of concrete, and the use of power tools. Noise would also be generated by construction equipment use, including earthmovers, material handlers, and portable generators, and could reach high noise levels for brief periods.

The loudest noises during construction are typically from pile driving and blasting. No pile driving or blasting is planned for the Project.

As discussed in Section 4.13 of the MoVal 2040 Project EIR, hourly average noise levels would be approximately 83 dBA Leq at 50 feet from the center of construction activity when assessing three pieces of common construction equipment working simultaneously. Noise levels would vary depending on the nature of the construction activities including the duration of specific activities, the equipment involved, the location of the sensitive receivers, and the presence of intervening barriers. Construction noise levels of 83 dBA Leq at 50 feet would attenuate to 80 dBA Leq at 70 feet. Therefore, significant impacts would occur if sensitive land uses are located closer than 70 feet of construction activities (Moreno Valley 2021b).

The nearest sensitive receptors to the Project Site are homes on the north side of Jennings Court and Hillmer Court, within 50 feet from the southern boundary of the Project Site and within 350 feet from the center of proposed construction activity. With a bulldozer or scraper operating at the southern boundary of the Project Site with a maximum, intermittent short term noise level of 85 dBA, the noise level at the nearest home would be 79 dBA. Assuming a noise source of 83 dBA Leq at the center of the Site, the noise level at the closest sensitive receptor would be approximately 66 dBA Leq. This would be less than the 80 dBA Leq threshold of significance used in the MoVal 2040 Project EIR. The impact would be less than significant.

Operational Noise – On-site Sources

Operational noise sources associated with the Project would include, but are not limited to, mechanical HVAC (heating, ventilating, and air conditioning) units; landscape maintenance equipment; and vehicles entering and exiting the Project Site. The Moreno Valley Municipal Code, Section 11.80.030 (C) prohibits noise generation in excess of 60 dBA Leq in the daytime and 55 dBA Leq in the nighttime at 200 feet from the property line (Moreno Valley 2021a). Typical outdoor HVAC units may have noise levels from 65 to 75 dBA at a distance of 3 feet. Project HVAC units would be located 100 feet or more north of the property line. HVAC noise levels 200 feet south of the property line would be 45 to 55 dBA, which would not exceed

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the nighttime noise level requirement. Vehicle noise would be intermittent and would not exceed 55 dBA at 200 feet from the property line. The impact would be less than significant.

Operational Noise – Project-Generated Traffic

As stated in the MoVal 2040 Project EIR, long-term traffic noise that affects sensitive land uses would be considered substantial and constitute a significant noise impact if the project would:

- Increase noise levels by 5 dB or more where the no project noise level is less than 60 CNEL;
- Increase noise levels by 3 dB or more where the no project noise level is 60 CNEL to 65 CNEL; or
- Increase noise levels by 1.5 dB or more where the no project noise level is greater than 65 CNEL.

The Project would generate an estimated 80 trips during the a.m. peak hour, 107 trips in the p.m. peak hour, and 1,020 total daily trips (Translutions 2021). The greatest impact for traffic noise increase would be the addition of Project traffic on the roadway with the least No Project traffic volume, which is Morton Road, north of Wordsworth Road. Based on the peak hour data in the traffic impact analysis (TIA), the No Project average daily traffic volume is less than 1,000 vehicles per day on Morton Road (Translutions 2021). The No Project noise level would be less than 55 dBA CNEL and would trigger the 5 dB significance threshold.

Comparison of the Project Completion Without Project traffic volumes to the Project Completion With Project traffic volumes shows a 270 percent increase in traffic volume. Assuming no change in average speed or fraction of trucks in the vehicle mix, the traffic noise increase would be approximately 4.4 dBA. This value is less than the 5 dBA significance threshold. The impact would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant Impact. Vibration is an oscillatory motion through a solid medium in which the motion’s amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities such as railroads or vibration-intensive stationary sources but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers.

Construction generally includes a wide range of activities that can generate groundborne vibration. In general, blasting and demolition of structures generate the highest vibrations. Heavy trucks can also generate groundborne vibrations, which vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, and other anomalies all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration of normal traffic on streets and freeways with smooth pavement conditions.

The peak particle velocity (ppv) or the root mean square (rms) velocity is usually used to describe vibration amplitudes. The ppv is defined as the maximum instantaneous peak of the vibration signal and the rms is defined as the square root of the average of the squared amplitude of the signal. The ppv is more appropriate for evaluating potential building damage and is also used for evaluating human response. The units for ppv velocity are normally inches per second (in/sec).

The Municipal Code does not establish quantified limits for vibration levels (Moreno Valley 2021a). Section 9.10.170 states that “No vibration shall be permitted which can be felt at or beyond the property line.” Caltrans defines a distinctly perceptible vibration level as 0.24 ppv in/sec (Caltrans 2013).

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As stated in the MoVal 2040 Project EIR, the Federal Transit Administration (FTA) provides construction vibration damage criteria for various types of buildings. The appropriate threshold for Project vibration analysis is 0.2 ppv in/sec, which is the FTA criterion for non-engineered timber and masonry buildings.

Pile driving and blasting are generally the sources of the most severe vibration during construction. Neither pile driving nor blasting would be used during Project construction. Conventional construction equipment would be used for grading activities. Table 13 summarizes typical vibration levels measured during construction activities for various vibration-inducing pieces of equipment.

**TABLE 13
VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT**

Equipment	ppv at 25 ft (in/sec)
Vibratory roller	0.210
Large bulldozer	0.089
Caisson drilling	0.089
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003
ppv: peak particle velocity; ft: feet; in/sec: inches per second. Source: Caltrans 2013; FTA 2006.	

As shown in Table 13, a vibratory roller would produce the largest vibration. Vibration from a vibratory roller would be less than the 0.2 ppv in/sec significance criterion for building damage and the 0.24 ppv in/sec distinctly perceptible level at distances of 30 feet or greater. Project construction is not anticipated within 30 feet of the southern property line. The impact would be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant Impact. March Air Reserve Base, a joint-use civilian and military facility, is located approximately 4.2 miles south-southwest of the Project Site. The northernmost 60 dBA CNEL aircraft noise contour is located south of the Project Site and across highway SR-60. Therefore, aircraft noise at the site is less than 60 dBA CNEL. Noise levels less than 65 dBA CNEL are “Normally Acceptable” for residential land uses according to the 2021 General Plan Update Noise Element (Moreno Valley 2021b). Therefore, the Project would not expose residents to excessive aircraft noise levels. The impact would be less than significant.

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XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of road or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. The Project is not anticipated to generate substantial unplanned population growth. Using an estimate of 2.95 persons per dwelling unit for residential development (United States Census Bureau 2021), the 108-unit Project could generate approximately 319 residents. It is unlikely that all the Project residents would be new residents to the City as some current City residents would likely relocate to the Project Site. However, for purposes of providing a conservative analysis, it is assumed that the Project would result in a net increase of 319 residents to the City. This additional population would represent approximately 0.0015 percent of the current City of Moreno Valley population estimate of 209,426 persons for the year 2021 (DOF 2021), and approximately 0.0012 percent of the projected population of 256,600 persons by 2040 (Moreno Valley 2021b). This minimal population growth would not be considered substantial unplanned population growth and would be consistent with the zoning and planned use of the Project Site. The Project includes no commercial or other land uses that would generate jobs, so indirect population growth is not anticipated to result from the Project. The extension of infrastructure to the subject site is not anticipated to generate future developments in the City of Moreno Valley due to the Open Space designations and hillside terrain located north and east of the site, which will not allow further development. Furthermore, the City is currently updating the City’s General Plan to meet the City’s Regional Housing Needs Assessment (RHNA) allocation for the Sixth Cycle Housing Element Update, which is a total of 13,627 units of total new construction. Targeted residential density changes are included to provide for higher density housing to support the meeting of state obligations under RHNA. Therefore, the Project would not result in substantial unplanned population growth and less than significant impacts would result.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. The Project would result in a residential development and would not require the demolition of any existing residential structures. Therefore, implementation of the Project would not displace existing housing or people and would not require the construction of replacement housing.

XV. PUBLIC SERVICES – Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. Fire protection services for the Project Site would be provided by the Moreno Valley Fire Department. The Towngate Station is the nearest station to the Project Site. The Towngate Station was jointly constructed by the City of Moreno Valley and the City of Riverside. The Towngate Station is a three bay facility that can house two engine companies, a truck company, and additional resources as needed. Currently, there is one paramedic engine assigned to this station which

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services the west side of Moreno Valley. Current equipment based at this station includes the following: one Type 1 engine, one Type 1 reserve engine, and one Paramedic Squad (Moreno Valley 2021b). Construction of the proposed 108 residential units would result in approximately 319 new residents and 108 units which would incrementally increase the demand for fire protection services, including administrative tasks associated with approval and construction of the Project (e.g., building plan check) and response to fire service calls once the Project is occupied. This minor increase in demand for fire protection services is not expected to independently require the construction of new or alteration of existing fire protection facilities to maintain an adequate level of fire protection service to the Project area. However, to maintain current levels of response times the Fire Department may need to add to their existing staffing to accommodate the Project as well as other cumulative projects in the vicinity (Moreno Valley 2021b).

Also, cumulatively, the Project along with others in the vicinity would likely necessitate construction of additional fire stations. The Moreno Valley Fire Department’s Strategic Plan has identified potential locations of future fire stations within the City. However, the Project as well as other future development in the City would be required to pay a Development Impact Fee (DIF) that would be used exclusively for future facility improvements necessary to ensure contribution of its fair share of the cost of facilities and equipment. Payment of the DIF, as required by **RR PUB-2**, would allow future site-specific development to contribute to its fair share cost of facilities and equipment due to the increased demand for fire protection services (Moreno Valley 2021b). The construction of future fire department facilities would be subject to separate environmental review.

Furthermore, compliance with fire protection design standards during Project-specific site planning and construction design processes (as described in **RR PUB-1**) would ensure that the Project would not inhibit the ability of fire protection or paramedic crews to respond at optimum levels. Less than significant impacts would result related to this threshold, and no mitigation is required.

ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project includes the addition of new homes that would increase the population and demand for police service at the Project Site above existing conditions. Police protection services for the Project Site are provided by the Moreno Valley Police Department (MVPD). Since incorporation, the City has maintained an annual contract with the Riverside County Sheriff’s Department for police protection and crime prevention services. The City’s existing General Plan (Moreno Valley 2021b) established a police staffing standard of at least 1 officer per 1,000 residents, as feasible given budget constraints. The Patrol Division of MVPD provides first responders to crimes in progress and to calls for service assigned by dispatch. The unit contains nine supervising sergeants, 64 sworn patrol officers, 3 K-9 teams, and 10 nonsworn officers. The MVPD receives approximately 400 to 450 calls per day. Calls to the MVPD are prioritized and assigned by urgency, from greatest urgency (Priority 1) through non-emergency calls. Priority 1 calls include emergency calls which require immediate response, when vehicular pursuit is in process, or when there is reason to believe that an immediate threat to life exists. Priority 2 calls include injured persons, robberies in progress, bomb threats, car jackings, rape, and stolen vehicles. Priority 3 calls include assault, prowlers, disturbances, tampering with vehicles, and burglary alarms. The MVPD has a response target of six minutes or less for Priority 1 calls, 15 minutes or less for Priority 2 calls, and 35 minutes or less for Priority 3 calls. MVPD operates out of the Moreno Valley Station, located in the Civic Center Complex at Alessandro and Frederick, with satellite substations in several other locations throughout the city (Moreno Valley 2021b).

The City is planning an expansion of the Civic Center complex that would include a remodeled Public Safety Building capable of accommodating roughly 600 total personnel, as well as a satellite police substation in the southeastern part of the City to service anticipated demand from new development (Moreno Valley 2021b). These two additional facilities would provide space necessary for additional staffing to provide police protection services under Project buildout. As specified in **RR PUB-2**, the Project would be subject

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to the payment of a DIF that would be used exclusively for future facility improvements necessary to ensure contribution of its fair share of the cost of facilities and equipment determined to be necessary to adequately accommodate new development in the City. Payment of the DIF would allow future site-specific development to contribute to its fair share cost of facilities and equipment due to the increased demand for police protection facilities. The construction of future police facilities would be subject to environmental review. Therefore, the Project would result in less than environmental impacts related to the expansion of police services.

iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project would result in the addition of new households with school-age children that would increase attendance at local schools. The Moreno Valley Unified School District (MVUSD) serves the Project Site. The Project Site would be served by Seneca Elementary School (0.49-mile south), Vista Heights Middle School (3.83 miles east), and Canyon Springs High School (3.83 miles east). MVUSD is the third largest school district in Riverside County, serving approximately 77 square miles that includes portions of the City, a small portion of the City of Riverside, and unincorporated regions in Riverside County. MVUSD serves Kindergarten through 12th grade across 39 existing school sites, with 32,763 students enrolled in the 2018–2019 school year (Moreno Valley 2021b). MVUSD has identified the need to construct additional schools to meet future enrollment demand. Construction of future schools could result in environmental impacts (Moreno Valley 2021b). At the time future schools are proposed, they would require separate environmental review and compliance with regulations in existence at that time would address potential environmental impacts related to the construction and operation of new schools. Furthermore, prior to issuance of a building permit, the Developer shall pay new development fees to the MVUSD pursuant to Section 65995 of the *California Government Code*. As an option to the payment of developer fees, the MVUSD and the Developer can enter into a facility and funding agreement, if approved by both parties. Evidence that agreements have been executed shall be submitted to the Community Development Department, or fees shall be paid with each building permit. Given the considerations above, the Project would result in less than significant impacts related to this threshold, and no mitigation is required.

iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The City’s Parks and Community Services Department maintains approximately 482 acres of parkland within the Planning Area, which consists of seven community parks, 24 neighborhood parks, four specialty parks and 15 miles of trails/greenways existing and proposed park and recreational facilities (Moreno Valley 2021b). The City has established a park service standard of 3.0 acres of parkland per 1,000 residents to ensure that access to parks is adequate and commensurate with the size of the community. With 675.77 acres of existing and planned parkland, Moreno Valley currently has 2.68 acres per thousand residents, below the established service ratio. The City owns several properties that may be developed in the future as parks. Development of these facilities would provide new recreational open space to satisfy future demand. The City requires that new residential developments, such as the Project, be required to dedicate land for new park facilities or pay a fee that can be used for acquisition of parkland as needed to meet the community-wide standard, pursuant to Section 3.40.020 of the Moreno Valley Municipal Code, at the time of subdivision map approval or issuance of building permits, which is a codification of State “Quimby Act” requirements. Construction of these future parks could result in environmental impacts, including disturbances or conversion of habitat, water pollution during construction, increased noise levels, and an increase in impermeable surfaces. At the time future parks are proposed, they would require a separate environmental review and compliance with regulations in existence

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at that time would address potential environmental impacts related to the construction and operation of new parks.

Based on the population increase estimate of 319 new residents, a total of 0.957 acres of new parkland must be dedicated and improved with the Project, unless in lieu fees are paid. The Project proposes a 0.89-acre neighborhood park and a total of 3.1 acres of open space consisting of common-area, trails, and the neighborhood park area within the Project Site boundaries. The Project’s provision of these 3.1-acres of parkland per 319 anticipated residents added by the Project exceeds the City’s goal of 3.0-acres per 1,000 residents, for new residents. However, the Quimby Act regulations require that “public parks” open to the general public be provided. If the Project proposes to add a neighborhood park that is owned and maintained by the Homeowners Association, this would not meet Quimby Act regulations. Similarly, if linear parks or public trails are open to the general public, they could count as part of the Quimby “3 Acre/1,000 residents” standard.

The increase in Project residents would increase the demand on public parks and recreational facilities in the nearby vicinity. However, because the Project results in a relatively small number of new residents to the City’s existing population and provides on-site recreational amenities, the increased use of existing public park facilities would not be at a level that would result in a substantial deterioration of existing facilities or require the need for new or physically altered facilities. Furthermore, as required by **RR PUB-2**, the Developer would be required to pay the DIF, a portion of which is used for parkland dedication and park improvements. Although the Project’s impacts to City park facilities would be less than significant, payment of required DIF would further reduce any potential impacts on City parks and recreational facilities associated with the increased demand and use of the facilities. Therefore, based on this analysis, less than significant impacts would result from the Project, and no mitigation is required.

v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant Impact. The Moreno Valley Public Library provides services and programs to the City, including the Project Site. The library has three branch locations. The Main Branch facility is located on the old Midland Middle School site, reconstructed in 1987 to house the library as well as a senior and community center. The library has since grown to occupy the entire 16,000-square-foot building. The Mall branch satellite location, opened in 2017, is located at 22500 Town Circle, and is the nearest to the Project Site approximately 4.13-miles away. The Iris Plaza Branch, opened in 2020, is located at 16170 Perris Boulevard. The three public libraries offer a wide array of books and technological resources that are suited to serve patrons of all ages, supporting a culture of learning and civic involvement. The Project would be subject to the payment of a DIF, as required by **RR PUB-2**, that would be used exclusively for future facility improvements necessary to ensure contribution of its fair share of the cost of facilities, including libraries. Payment of the DIF would allow future site-specific development to contribute to its fair share cost of facilities and equipment due to the increased demand for libraries. Construction of future libraries could result in environmental impacts, including disturbances or conversion of habitat, water pollution during construction, increased noise levels, and an increase in impermeable surfaces. At the time future libraries are proposed, they would require a separate environmental review and compliance with regulations in existence at that time would address potential environmental impacts related to the construction and operation of new libraries. Therefore, based on this analysis, less than significant impacts would result from the Project, and no mitigation is required.

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Mitigation Program:

Regulatory Requirement

RR PUB-1 The Developer shall comply with all applicable codes, ordinances, and regulations, including the most current edition of the California Fire Code and the City of Moreno Valley Municipal Code, regarding fire prevention and suppression measures; fire hydrants; fire access; water availability; and other, similar requirements. Prior to issuance of building permits, the City of Moreno Valley Community Development Department and the Moreno Valley Fire Department shall verify compliance with applicable codes and that appropriate fire safety measures are included in the Project design. All such codes and measures shall be implemented prior to occupancy.

RR PUB-2 The Developer shall pay all applicable Development Impact Fees (DIFs) prior to the issuance of building permits, for parkland dedication, parkland improvements, public safety facilities, other governmental facilities, and outside agency fees including school district fees.

XVI. RECREATION – Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility will occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less than Significant Impact. See response above to threshold XV(iv) for a related response. In summary, the Project would result in an increase of 319 residents and usage of parks. However, the Project includes the provision of a neighborhood park within the Project Site and would pay the City's DIF for parkland in lieu fees as needed and as required by **RR PUB-2**, which would ensure that the Project pays its fair share for any required new parks or improved park facilities. Less than significant impacts would result from the Project related to this threshold, and no mitigation is required.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response:

No Impact. The Project includes the development of a neighborhood park within the Project Site and the impacts of the park has been addressed through the impact analysis presented throughout this document. The Project also includes the rezoning and dedication of portions of the Project Site, which may be developed by the City or others with recreational trails or other facilities at some time in the future. Any future trails or other recreational facilities within these areas would be subject to a separate environmental review. Therefore, no impacts would result from the Project related to this threshold, and no mitigation is required.

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XVII. TRANSPORTATION – Would the project:

a) Conflict with program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project’s consistency with programs, plans, ordinances, and policies related to the circulation system is evaluated below.

General Plan – Circulation Element:

The Circulation Element of the City’s General Plan includes an evaluation of the regional transportation system, as well as City goals and policies related to circulation. The Project would not directly conflict with any of the goals or policies contained in the Circulation Element. The Project would support the City in implementing Goal C-2 of the Circulation Element, which is to plan, design, construct, and maintain a local transportation network that provides safe and efficient access throughout the city and optimizes travel by all modes. The Project includes local roads that have been designed to allow for safe paths of travel for vehicular, bicycle, and pedestrian users. As a result of Senate Bill 743 (SB 743), a Project’s impacts on vehicular Level of Service (LOS) are no longer considered an environmental impact. Therefore, the Project’s effects on vehicular LOS are disclosed separately in the Project’s Traffic Impact Analysis, provided as Appendix K. Recommended LOS-related conditions of approval are provided therein to ensure consistency with City LOS standards that are contained in the Circulation Element.

Bicycle Master Plan:

The City’s Bicycle Master Plan contains an analysis of existing conditions, an evaluation of opportunities and constraints for improving the City’s bicycle system, and goals, policies, and objectives relating to bicycling (Moreno Valley 2014). The Bicycle Master Plan does not have any goals, policies, or objectives that relate directly to developments; therefore, the Project would not conflict with the Bicycle Master Plan. Furthermore, the Project’s internal roadways have been designed to include shoulders that could be used by bicyclists.

Conclusion

As discussed above, the Project would not conflict with a circulation-related program, plan, ordinance, or policy. The Project would result in less than significant impacts relative to this threshold, and no mitigation is required.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. Based on the City of Moreno Valley Transportation Impact Analysis Preparation Guide for Vehicles Miles Traveled and Level of Service Assessment, a project located in a low VMT area can be effectively screened out from a project-level VMT assessment. To identify if the Project is in a low VMT-generating area, the WRCOG screening tool was applied using VMT per capita. Figure 16 presented within the Traffic Impact Analysis (Appendix K) shows the low VMT area screening for the Project, which shows that the Project Transportation Analysis Zone (TAZ) based VMT per capita is 15.45 miles. The jurisdictional VMT per capita is 19.04 miles. Since the Project TAZ VMT per capita is lower than the City’s VMT per capita, the Project is considered to be in a low VMT generating TAZ and presumed to

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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have a less than significant impact on VMT (Translutions 2021). No additional analysis is required and no mitigation measures are required.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The design of driveways and other project access locations would be based on City Code, which sets the standard for such design. And the project does not propose any incompatible land uses, because only new residences are being proposed on a site that is adjacent to single family residential uses to the south. New roads and sidewalks within the Project Site are not anticipated to increase traffic hazards as they will comply with engineering industry standards for new roads, as reviewed and approved by the City of Moreno Valley’s Land Development Department. The Project will create a slight realignment of the Morton Road street right-of-way to be adjusted towards the east near the project entry in order to create added street frontage. However, the re-designed street right-of-way will conform to acceptable standards for street geometry and grading principles, and will not create any increased hazards. Therefore, the Project impact is considered less than significant.

d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The proposed new roadway connection to Morton Road and internal roadways would be designed in accordance with all applicable design and safety standards required by adopted fire codes, safety codes, and building codes established by the City’s Land Development and Fire Departments. The Project would not increase delays on street segments substantially; therefore, the Project would not result in inadequate emergency access, and the Project impact is considered less than significant.

XVIII. TRIBAL CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k) , or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Response: The Project is subject to Assembly Bill 52 (AB 52) (Chapter 532, Statutes of 2014), which establishes a formal consultation process for California tribes as part of the CEQA process and equates significant impacts on “tribal cultural resources” with significant environmental impacts (Public Resources Code [PRC] § 21084.2). AB 52 requires that lead agencies undertaking CEQA review evaluate, just as they do for other historical and archeological resources, a project’s potential impact to a tribal cultural resource. The City must notify all Tribal Governments that have been previously registered for AB 52 consultation interest with the City about the Notice of Intent to Adopt a Mitigated Negative Declaration, and offer a 30-day review period in which to request “formal government-to-government consultation”.

Also, because the Project involves a General Plan Amendment, the Project is also subject to Section 65352.3 of the CA Government Code (SB 18), which requires local planning agencies to provide

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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opportunities for involvement of California Native American tribes on the contact list maintained by the Native American Heritage Commission. The listed Tribes have up to 90 days to request consultation, unless a shorter time frame is agreed to by that Tribe.

Consultation under Assembly Bill 52 (AB 52) and Senate Bill 18 (SB 18) began on January 20, 2022 with letters being sent to the following tribes:

- Agua Caliente Band of Cahuilla Indians;
- Cahuilla Band of Indians;
- Torres-Martinez Desert Cahuilla Indians;
- Los Coyotes Band of Cahuilla Mission Indians;
- Morongo Band of Mission Indians;
- Pechanga Band of Luiseño Indians;
- Rincon Band of Luiseño Indians;
- San Manuel Band of Mission Indians;
- Santa Rosa Band of Mission Indians; and
- Soboba Band of Luiseño Indians.

The 90-day response period ended on April 19, 2022. Of the ten tribes contacted, two tribes requested to consult during the consultation process which included: Pechanga Band of Luiseño Indians and Rincon Band of Luiseño Indians. Additionally, the City received a request from Agua Caliente Band of Cahuilla Indians for Project documents but no formal request to consult.

The consulting tribes consider the area sensitive for tribal cultural resources because the Project Site lies within their traditional use areas and there are cultural resource sites that have been located in the larger vicinity. Also, two components of Site 33-15937 would be impacted by the Project, which consists of both prehistoric and historic-period components, including bedrock milling features, building foundations, a well, a cistern, and a refuse deposit. were determined not to meet CEQA definition of “historical resources” (CRM Tech 2018). Given this context, the consulting tribes requested inclusion of mitigation due to the potential of the Project to unearth previously undocumented tribal cultural resources during construction. As such, **MM TCR-1** through **MM TCR-10** are included, which require archaeological and Native American monitoring, preparation of a Cultural Resource Monitoring Plan, procedures for artifact disposition and inadvertent finds, and preparation of Phase III and IV reports. With implementation of **MM TCR-1** through **MM TCR-10**, impacts would be less than significant.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1 . In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1 , the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response: As discussed above, to avoid potential adverse effects to tribal cultural resources, **MM CUL-1** and **MM TCR-1** have been included to provide for Native American and archaeological monitoring of excavation and grading activities to avoid potential impacts to tribal cultural resources that may be unearthed by Project construction activities. No information has been provided to the Lead Agency

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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indicating any likelihood of uncovering tribal cultural resources on the Project Site, there are no known tribal cultural resources on or adjacent to the Project Site, and no potentially significant impacts are anticipated. Mitigation measures **MM CUL-1** and **MM TCR-1** through **TCR-10** are included in the event of any inadvertent discoveries during construction activities.

Additionally, as described previously under **RR CUL-1**, California Health and Safety Code, Section 7050.5 requires that if human remains are discovered in the Project Site, disturbance of the site shall halt and remain halted until the coroner has conducted an investigation. If the coroner determines that the remains are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission. Therefore, with implementation of **RR CUL-1**, **MM CUL-1**, and **MM TCR-1** through **MM TCR-10**, impacts to TCRs would be less than significant.

Mitigation Program:

Mitigation Measure

MM TCR-1: Archaeological Monitoring. Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist, who meets the U.S. Secretary of the Interior Standards, to conduct monitoring of all mass grading and trenching activities.

The Project Archaeologist, in consultation with the Consulting Tribe(s) including Pechanga Band of Luiseño Indians, the contractor, and the City, shall develop a CRMP as defined in **MM TCR-3**. The Project archeologist shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The archaeological monitor shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed.

MM TCR-2: Native American Monitoring. Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians for tribal monitoring. The City is also required to provide a minimum of 30 days' advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. The Native American Monitor(s) shall attend the pre-grading meeting with the Project Archaeologist, City, the construction manager and any contractors and will conduct the Tribal Perspective of the mandatory Cultural Resources Worker Sensitivity Training to those in attendance.

MM TCR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

- a. One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:
 - i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.
 - ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to **MM CUL-1**. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American

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Tribal Governments as defined in **MM CUL-1**. The location for the future reburial area shall be identified on a confidential exhibit on file with the City, and concurred to by the Consulting Native American Tribal Governments prior to certification of the environmental document.

MM TCR-3: Cultural Resource Monitoring Plan (CRMP). The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a CRMP in to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the Project Site. A consulting Tribe is defined as a Tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

- a) Project description and location;
- b) Project grading and development scheduling;
- c) Roles and responsibilities of individuals on the Project;
- d) The pre-grading meeting and Cultural Resources Worker Sensitivity Training details;
- e) The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.
- f) The type of recordation needed for inadvertent finds and the stipulations of recordation of sacred items.
- g) Contact information of relevant individuals for the Project.

MM TCR 4: The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

MM TCR 5: Inadvertent Finds. If potential historic or cultural resources are uncovered during excavation or construction activities at the Project Site that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to Project approval, all ground disturbing activities in the affected area within 100 feet of the uncovered resource must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional archeologist and Tribal Monitors, if needed. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in **MM TCR-2** before any further work commences in the affected area. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan shall be

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prepared by the Project Archeologist, in consultation with the Tribe, and shall be submitted to the City for their review and approval prior to implementation of the said plan.

MM TCR 6: Human Remains. If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the “most likely descendant”. The “most likely descendant” shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

MM CR 7: Non-Disclosure of Reburial Locations. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code 6254 (r).

MM TCR 8: Archeology Report - Phase III and IV. Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required for the Project) and the Phase IV Cultural Resources Monitoring Report that complies with the Community Development Department's requirements for such reports. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. The Community Development Department shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, the Community Development Department shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s).

MM TCR 9: In accordance with consultations and determinations made by the developer and the Pechanga Tribe, all recorded features within CA-RIV-8274 will be avoided except for bedrock milling feature (1), which is on Lot 8. The Pechanga Tribe shall work with the project archaeologist, the developer, and the grading contractor or appropriate personnel to determine a reasonable methodology for relocating these features. Attempts will be made to excavate and relocate these boulders to the open space preserve, should their size and depth permit. If the boulders cannot be moved intact due to feasibility constraints, an attempt will be made to transversally cut into them so as to free the exposed prehistoric features, allowing the slicks themselves to be relocated to the adjacent open space preserve. The current Department of Parks and Recreation (DPR) forms shall be updated, detailing which features were relocated, the process taken, and updated maps provided documentation of the features' new location. The site record should clearly indicate that the features are not in their original location and why they were relocated.

MM TCR 10: Prior to any earthmoving activities, milling features 3 and 5 of CA-RIV-8274 will be fenced and identified as an Environmentally Sensitive Area (ESA). The Project Applicant will ensure that appropriate temporary fencing is installed (i.e., orange fabric/barrier fencing) to prevent any unintentional disturbances to features 3 and 5 of CA-RIV-8274 during any earthmoving activities on the project site. The fencing will be installed before clearing and grubbing and will not be removed until all earthmoving activities have been completed. The project archaeologist and Pechanga Tribal Monitor will be on site to monitor the fence installation and removal and will conduct daily inspections of the fencing to make sure that

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

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it is intact and has not been breached. If the project archaeologist and/or Pechanga Tribal Monitor identify a breach of the fence, i.e., removal, cut, depressed, driven over or intentionally breached in any way, all work within a 25-foot buffer shall cease and the Project Applicant, City, project archaeologist and the Pechanga Tribe shall meet and confer as to the best method to repair the fencing. The person(s) responsible for the breach and the Construction Supervisor (or appropriate supervisory personnel) shall be required to retake the sensitivity training provided at the beginning of construction, in addition to any other remedies considered appropriate.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 7 – Conservation Element – Section 7.2 – Cultural and Historical Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.10 – Cultural Resources
 - Figure 5.10-1 – Locations of Listed Historic Resource Inventory Structures
 - Figure 5.10-2 – Location of Prehistoric Sites
 - Figure 5.10-3 – Paleontological Resource Sensitive Areas
 - Appendix F – Cultural Resources Analysis, Study of Historical and Archaeological Resources for the Revised General Plan, City of Moreno Valley, Archaeological Associates, August 2003.
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Title 7 – Cultural Preservation
5. Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California, prepared by Daniel F. McCarthy, Archaeological Research Unit, University of California, Riverside, October 1987 (*This document cannot be provided to the public due to the inclusion of confidential information pursuant to Government Code Section 6254.10.*)

XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact.

Water

The Project Site is served by EMWD. EMWD imports water from MWD that it uses to provide water supply to the City. The imported water received from MWD is treated at two treatment plants: Henry J. Mills (Mills) in Riverside and Robert A. Skinner (Skinner) in Winchester. At Mills, State Water Project water is treated, while at Skinner a combination of State Water Project water and Colorado River Aqueduct water is treated. Untreated water supplied by MWD is treated by EMWD at a microfiltration plant in Perris. An additional

Attachment: Exhibit A to Resolution No. 2023-XX - Initial Study (6434 : Gateway Heights Tract 38459)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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microfiltration plant is located in Hemet, which provides untreated MWD water directly to a number of agricultural and wholesale customers. EMWD is increasing the use of recycled water, through expansion and maximization of the four regional water reclamation facilities (Moreno Valley 2021b).

The Project would generate an increase in water demand through the addition of approximately 319 people and 108 residential units; however, the neighboring properties are already served by water infrastructure. The Project includes trenching and installation of a water line to connect to the existing water main line located within Morton Road near the intersection with Jennings Court, which serves the existing residential development south of the Project Site. The impacts of these water-related improvements are disclosed in this Initial Study/Mitigated Negative Declaration (IS/MND), and no other relocation or expansion of water infrastructure is anticipated.

Wastewater

EMWD is responsible for all wastewater collection and treatment in its service area. EMWD’s wastewater collection systems include: 1,534 miles of gravity sewer, 53 lift stations, and 4 operational regional water reclamation facilities (RWRFs), with interconnections between local collection systems serving each treatment plant. Inter-connections between the local collections systems serving each treatment plant allow for operational flexibility, improved reliability, and expanded deliveries of recycled water. All of EMWD’s RWRFs produce tertiary effluent, suitable for all Department of Health Services permitted uses, including irrigation of food crops and full-body contact. EMWD treats all of the wastewater collected in its service area to tertiary standards and disposes of its recycled water in one of three ways: (1) customer sales, (2) discharge to Temescal Creek, or (3) percolation and evaporation while stored in ponds throughout EMWD. In 2015, EMWD collected 48,665 acre-feet of wastewater, treated 45,385 acre-feet of wastewater, and recycled 34,001 acre-feet of wastewater within its service area (Moreno Valley 2021b).

The Project would generate an increase in wastewater generation through the addition of approximately 319 people and 108 residential units; however, the neighboring properties are already served by wastewater infrastructure. The Project includes trenching and installation of a sewer line to connect to the existing sewer main line located within Morton Road near the intersection with Jennings Court, which serves the existing residential development south of the Project Site. The impacts of these wastewater-related improvements are disclosed in this IS/MND, and no other relocation or expansion of water infrastructure is anticipated. Furthermore, in July 2021 a will serve letter was received by the Developer confirming that EMWD is willing to provide water and sewer services to the Project (EMWD, July 2021a).

Stormwater

The Project includes the installation of hillside drainage, inlets, and storm drain lines to intercept and convey stormwater either along existing flow paths or to the Project’s two combination detention and bioretention basins (e.g., Basins A and B). Basin overflows have been designed to connect downstream to two natural drainage courses, similar to pre-Project conditions. Project drainage and stormwater improvements are depicted in Figure 6, Preliminary BMP Site Plan from the Preliminary Water Quality Management Plan.

Electricity, Natural Gas, and Telecommunications

SCE and the Moreno Valley Electric Utility (MVU) provide electricity to the Planning Area. SCE, a subsidiary of Edison International, serves approximately 180 cities in 11 counties across central and southern California. Today SCE has over 6,500 residential and business clients in a service area that covers the eastern and southern portions of the city. Southern California Gas provides the City with natural gas service. SoCalGas’ service territory encompasses approximately 20,000 square miles and more than 500 communities. No telecommunications facilities occur within the Project Site. The Project would install electricity, natural gas, and telecommunication lines onsite and would be responsible to connect to existing distribution lines offsite. The Project includes trenching between the Project Site and the intersection of Morton Road and Jennings Court to connect to electricity, natural gas, and telecommunications facilities.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Conclusion

The Project would not require the relocation or extension of utility infrastructure, beyond the connection to existing utility mainlines that are located within Morton Road southwest of the Project Site. Less than significant impacts would result related to these thresholds, and no mitigation is required.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant Impact. EMWD’s 2020 Final Urban Water Management Plan (UWMP) is an update to the 2015 UWMP and was prepared in response to Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act. Detailed information about EMWD’s water demand, supply, and reliability is provided through 2040. As stated in the UWMP, EMWD’s recycled water distribution system includes 135 miles of large diameter transmission pipelines, 6,000 acre feet of surface storage reservoirs (10 separate sites), and 4 regional pumping plants. As set forth in the UWMP, EMWD has the supply needed to meet the demand of its customers through 2040 (Moreno Valley 2021b). The conclusion is based on the assurances of MWD that it would be able to supply member agency demands, the reliability of local groundwater supplies achieved through groundwater management plans and the development of recycled water resources. The UWMP was developed based on future population projections prepared by SCAG, which assumed R2 and HR zoning for the Project Site (SCAG 2020).

The Project proposes a zone change, which would allow for a greater density for the Project Site, which may result in nominal increases in indoor water usage above what was assumed in the UWMP. However, this slight increase in residential density would have a negligible effect on City and regional water demand relative to the overall service area of the EMWD. In July 2021 a will serve letter was received by the Project Developer confirming that EMWD is willing to provide water and sewer services to the Project (EMWD, 2021a).

Using the Actual 2020 Gallons (of Water) Per Capita Per Day (GPCD) measurements reported in EMWD’s 2020 UWMP of 125 GPCD, the new 319 residents that would reside within the Project site would result in an increased water demand above existing conditions of 39,875 gallons per day and 14,554,375 gallons per year, which is roughly 44.67 acre-feet of water annually. The Project’s demand equates to 0.0007-percent of the 62,970 acre-feet of water that is anticipated to be available in 2025 by EMWD’s 2020 UWMP.

Given the reasoning listed above, the Project would have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years, and impacts would be less than significant.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less than Significant Impact. The City provides trash, recycling, and special waste handling services to residents and businesses through a contract with Waste Management. The majority of solid waste generated within the city is disposed of at Badlands Sanitary Landfill, located north of SR-60 and west of I-10 off Ironwood Avenue. Two other landfills within the County of Riverside, El Sobrante Landfill and Lamb

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Canyon Landfill, also have the capacity to serve the City. These three landfills have a combined remaining capacity of approximately 178.8 million cubic yards (Moreno Valley 2021b).

The Project involves demolition of limited paved surfaces within Morton Road to construct utility improvements and drainage facilities, which would generate debris that would need to be removed from the Project Site. The solid waste generated from the demolition Project could be accommodated within the permitted capacity of the El Sobrante Landfill. Also, Project implementation would result in the development of 108 residential units. Based on a solid waste generation rate of 4.9 pounds per person per day, assuming a maximum occupancy of 319, the Project’s residential uses would generate approximately 1,563 pounds of trash per day (USEPA 2021).

The City’s Building Code requires development projects to complete and submit a Waste Management and Recycling Plan for approval prior to issuance of building permits. The Waste Management and Recycling Plan for the Project would identify the project type, and estimate the amount of materials to be recycled during construction. The Project would also be required to complete a Diversion Report for review by the City’s Building Department to demonstrate that the Project recycled a minimum of 50 percent of its construction waste. Future site-specific development under the Project would be required to complete a Waste Management and Recycling Plan and a Diversion Plan, which would ensure consistency with local and state requirements regarding waste diversion, including the California Integrated Waste Management Act. Additionally, the Project would also be required to implement organic waste recycling programs consistent with the requirements of AB 1826 and SB 1383. Therefore, the Project would not generate solid waste in excess of state or local standards, exceed the capacity of local infrastructure, or conflict with federal, State, or local management and reduction statutes and regulations related to solid waste, and impacts would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The California Integrated Waste Management Act (AB 939), signed into law in 1989, established an integrated waste management system that focused on source reduction, recycling, composting, and land disposal of waste. In addition, the bill established a 50 percent waste reduction requirement for cities and counties by the year 2000, along with a process to ensure environmentally safe disposal of waste that could not be diverted. Per the requirements of the Integrated Waste Management Act, the Riverside County Board of Supervisors adopted the County of Riverside Countywide Integrated Waste Management Plan (CIWMP), which outlines the goals, policies, and programs the County and its cities implement to create an integrated and cost-effective waste management system that complies with the provisions of AB 939 and its diversion mandates.

In order to assist the City of Moreno Valley in achieving the mandated goals of the Integrated Waste Management Act, the Project’s building occupant(s) would be required to work with future refuse haulers to develop and implement feasible waste reduction programs, including source reduction, recycling, and composting. Additionally, in accordance with the California Solid Waste Reuse and Recycling Act of 1991 (Cal Pub Res. Code Section 42911), the Project is required to provide adequate areas for collecting and loading recyclable materials where solid waste is collected. The collection areas are required to be shown on construction drawings and be in place before occupancy permits are issued. Further, in compliance with AB 341, the future occupant(s) of the Project would be required to arrange for recycling services, if the occupant generates four (4) or more cubic yards of solid waste per week. The implementation of these mandatory requirements would reduce the amount of solid waste generated by the Project and diverted to landfills, which in turn would aid in the extension of the life of affected disposal sites. The Project would be required to comply with all applicable solid waste statutes and regulations; as such, impacts related to solid waste statutes and regulations would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant Impact. The Project Site is located within a FHSZ in a Local Responsibility Area (LRA) (CALFIRE 2009). LRAs include incorporated cities, cultivated agriculture, lands, and portions of the desert. Local responsibility area fire protection is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local government (CALFIRE 2007). Outside of the City of Moreno Valley Boundaries adjacent properties to the west, north, and east of the Project Site are located within a FHSZ in a State Responsibility Area (SRA) (CAL FIRE 2009). SRA is a legal term defining the area where the State has financial responsibility for wildland fire protection (CALFIRE 2007). As noted above in response to Threshold IX(f), the Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. As described in more detail in response to Threshold XVII(a), the Project would result in additional traffic on local roadways during construction and operation of the Project. However, this additional traffic would not degrade the level of service on these roads or at local intersections. As such, evacuation routes identified in local plans, including Box Springs Road, SR-60, and I-215 would not be significantly affected by the Project. Therefore, the Project would result in less than significant impacts related to this threshold, and no mitigation is required.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project Site, as well as much of the northern and eastern portions of the City of Moreno Valley, is subject to wildland fires. As noted above, the Project Site is located within and adjacent to a FHSZ. The Project would be constructed in compliance with the Fire Code, California Building Code, and the objectives, policies, and programs of the City’s General Plan (Moreno Valley 2021b). Also, the Project includes the establishment and ongoing maintenance of fuel modification zones along the northern and eastern boundaries of the Project Site, as shown in the Fire Hazard Analysis and Approach memorandum that was prepared for the Project. Given the above considerations, the Project would not exacerbate wildfire risks, or expose Project occupants to pollutant concentrations from wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant, and no mitigation is required.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project includes the installation and maintenance of infrastructure, including roads within the Project Site, as well as wet and dry utilities within the Project Site and within the existing, developed portions of Morton Road just south of the Project Site and north of the intersection with Jennings Court. These improvements have no features that would substantially exacerbate wildfire risks during construction, operation, or ongoing maintenance. Electrical and gas lines serving the Project would

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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be underground and within proposed and existing roadway rights-of-way. Also, as mentioned above, the Project includes the establishment and ongoing maintenance of fuel modification zones along the northern and eastern boundaries of the Project Site, as shown in the Fire Hazard Analysis and Approach memorandum that was prepared for the Project, which would result in reduced wildfire risks. Less than significant impacts would result from the Project relative to this threshold, and no mitigation is required.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project Site is located upslope and directly adjacent to Morton Road. Stormwater flows from the Project Site would be conveyed and retained as described in more detail in response to threshold questions X (a–e) “Hydrology and Water Quality”, which would avoid the potential for downslope or downstream flooding, and for significant alterations to existing drainage patterns. The Project would result in an increase in impervious surface coverage and minor alterations to ephemeral drainages that traverse the Project Site; however, the Project’s drainage and water quality improvements would intercept, slow, and treat stormwater before it is allowed to flow into natural drainage courses away from the Site, similar to existing conditions. The Project’s drainage design is depicted in Figure 6, Project Specific Water Quality Management Plan, which includes a system of hillside drainage facilities, inlets, and storm drain lines as well as two combination detention and bioretention basins. Through the implementation of this drainage design and stormwater BMPs, the Project would have less than significant impacts related to downslope and downstream flooding due to runoff and drainage changes.

The Project would have no effects on the stability of slopes outside of the Project Site. As described in response to threshold question VII(a)(iv) “Geology and Soils” there was no geologic literature that indicated the presence of landslides on or directly adjacent to the Project Site (LGC Geo-Environmental, Inc 2018a). Therefore, the Project would have less than significant impacts related to post-fire slope instability and landslide.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Response:

Less Than Significant with Mitigation. Implementation of the Project would have the potential to degrade the quality of the existing environment as described below. Potential significant impacts have been identified related to Biological Resources (IV), Cultural Resources (Section V), Geology and Soils (VII), and Tribal Cultural Resources (XVIII). Mitigation measures have been identified related to individual resource-specific impacts. The Project has the potential to result in direct and indirect impacts to nesting coastal California gnatcatcher, white-tailed kite, loggerhead shrike and other nesting birds during construction activities. Implementation of **MM BIO-1**, which requires a pre-construction nesting bird survey be conducted if ground-

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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disturbing and/or vegetation clearance activities are scheduled to occur during the avian nesting season (typically February 15 through August 31), would reduce impacts to these species to less than significant levels. The Project Site and vicinity contains habitat suitable for burrowing owl, a non-listed special status species. Although a focused burrowing owl survey was conducted in 2021 and burrowing owl were determined to be absent, there is the potential for burrowing owl to colonize the Project Site or nearby vicinity prior to construction due to the presence of suitable habitat. If burrowing owl should colonize the Project Site or 500-foot vicinity prior to initiation of construction activities, impacts to burrowing owl could be significant. Implementation of **MM BIO-2**, which requires a pre-construction survey for burrowing owl be conducted would reduce any potential impact to less than significant levels. The Project would result in permanent impacts to drainages within the Project Site that are classified as non-wetland waters of the United States under the jurisdiction of USACE and the RWQCB, as streambed under the jurisdiction of CDFW on the Project Site, and as riverine resources pursuant to the MSHCP. **MM BIO-3** requires that the Developer obtain regulatory permits. **MM BIO-4** specifies minimum compensatory mitigation requirements for impacts to jurisdictional waters. With implementation of **MM BIO-2**, **MM BIO-3**, and **MM BIO-4**, the Project would result in less than significant impacts relative to fish or wildlife species habitat and would not cause fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community.

The Project is under the jurisdiction of the City of Moreno Valley and the Project Site is within the MSHCP Plan Area. Compliance with the MSHCP is mandatory and any conflict with the MSHCP would be a significant impact. To prevent conflicts with the applicable sections of the MSHCP, the Developer must do the following: pay the applicable MSHCP Development Mitigation Fee (**MM BIO-5**); implement resource avoidance measures associated with burrowing owl and riparian/riverine resources (**MM BIO-2** and **MM BIO-4**); and comply with MSHCP Urban/Wildlife Interface Guidelines (**MM BIO-7** and **RR AES-1**). Through the implementation of **MM BIO-2**, **MM BIO-4**, **MM BIO-5**, **MM BIO-7**, and **RR AES-1**, any potential conflicts with the MSHCP would be avoided and no impacts would be anticipated. The Project Site is within the Stephens' Kangaroo Rat Habitat Conservation Plan boundary. With payment of the Stephens' Kangaroo Rat Habitat Conservation Plan Development Mitigation Fee (**MM BIO-7**), the Project would be consistent with the Stephens' Kangaroo Rat Habitat Conservation Plan and less than significant impacts would result from the Project.

Given the presence of archaeological resources in the vicinity of the Project, there is the possibility that undiscovered intact cultural resources, including archaeological resources may be present below the surface in native sediments. This would represent a significant impact. However, implementation of **MM CUL-1**, which requires that any suspected cultural (archaeological) resources inadvertently unearthed during grading be evaluated by a qualified archaeologist to determine their significance and the appropriate course of action, would reduce this impact to a level considered less than significant. Also, **MM CUL-2** has been incorporated, which requires archaeological monitoring for all ground disturbance activities that occur within 30 meters (100 feet) of Sites 33-015937 and 33-015938. With implementation of these measures, impacts to archaeological resources would be reduced to less than significant.

Implementation of the Project would increase exposure to strong seismic ground shaking to additional people. Also, the Project would result in increased risks related to earthquake-induced land sliding and expansive soils. Compliance with the applicable regulations, and proper grading, design, and building construction methods specified in the Geotechnical Report, as required in **MM GEO-1**, would ensure that impacts that may result from geologic conditions at the Project Site to less than significant.

Certain soils underlying portions of the Project Site are considered moderate to high sensitivity for intact paleontological resources. Impacts to paleontological resources, if encountered, would be significant without mitigation. Incorporation of **MM GEO-2** which requires that a qualified paleontologist be retained to observe grading activities in the Older Alluvial Fan and Alluvium deposits on the Project Site and to salvage and catalogue fossils as necessary, would ensure that impacts to fossil resources are reduced to below a level of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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No information has been provided to the City during the tribal consultation process for this Project indicating any likelihood of uncovering tribal cultural resources on the Project Site. Further, there are no known tribal cultural resources on or adjacent to the Project Site, and no potentially significant impacts are anticipated. Nevertheless, in the event of any inadvertent discoveries of tribal cultural resources during construction activities, mitigation measures **MM TCR-1** through **MM TCR-10** have been incorporated into the Project, which require archaeological and Native American monitoring, preparation of a Cultural Resource Monitoring Plan, procedures for artifact disposition and inadvertent finds, and preparation of Phase III and IV reports..

All of these significant impacts related to the Project are mitigated to less than significant levels through the implementation of the mitigation measures discussed above. With incorporation of the mitigation measures identified above, the Project would result in less than significant impacts related to this threshold.

b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current project, and the effects of probable future projects.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant Impact. The Project would not have adverse environmental impacts at a significant level. All potential significant impacts would be addressed with mitigation measures. No significant cumulative effects are anticipated because no resources would be adversely affected by the Project, or the Project effects would be localized and of limited extent. A less than significant impact would occur in relation to cumulatively considerable effects.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response:

Less Than Significant with Mitigation. The Project would not cause significant adverse effects to human beings, either directly or indirectly with mitigation incorporated. As noted above due to the geologic conditions of the Project Site, seismic ground shaking, earthquake-induced land sliding, and expansive soils present a risk of substantial adverse effects to human beings if not mitigated. Therefore, the Project is required to implement proper grading, design, and building construction methods as specified in the Geotechnical Report, as required in **MM GEO-1** to ensure that impacts are reduced to less than significant levels.

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CITY OF MORENO VALLEY

INITIAL STUDY FOR THE GATEWAY HEIGHTS PROJECT



GATEWAY HEIGHTS PROJECT PEN 21-0066

February 2023

Lead Agency
CITY OF MORENO VALLEY
14177 Frederick Street
Moreno Valley, California 92553

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Volume 2a

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Appendix A
Air Quality Calculations

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

**Gateway Heights Residential
Riverside-South Coast County, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	108.00	Dwelling Unit	17.30	108,000.00	309

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use - .
- Construction Phase - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Grading -
- Trips and VMT - .
- Vehicle Trips - .
- Fleet Mix - .
- Woodstoves - No woodstoves

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	44.00
tblConstructionPhase	NumDays	300.00	264.00
tblConstructionPhase	NumDays	20.00	10.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.53	0.61
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.3100e-003	0.00
tblFleetMix	MCY	0.02	5.0470e-003
tblFleetMix	MDV	0.14	0.13
tblFleetMix	MH	5.4680e-003	1.0050e-003
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	6.1600e-004	1.5780e-003
tblFleetMix	SBUS	1.1000e-003	1.0280e-003
tblFleetMix	UBUS	3.1500e-004	1.2840e-003
tblGrading	MaterialExported	0.00	34,137.00
tblLandUse	LotAcreage	6.75	17.30
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	WorkerTripNumber	78.00	25.00
tblVehicleTrips	ST_TR	8.14	9.22

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	SU_TR	6.28	7.87
tblVehicleTrips	WD_TR	7.32	9.44
tblWoodstoves	NumberCatalytic	5.40	0.00
tblWoodstoves	NumberNoncatalytic	5.40	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.7971	39.7656	19.4215	0.0954	10.5584	1.2602	11.8186	4.1004	1.1647	5.2651	0.0000	9,794.6965	9,794.6965	1.3003	0.9398	10,107.2639
2023	34.0356	14.8592	17.1536	0.0313	0.3563	0.7045	1.0608	0.0962	0.6629	0.7591	0.0000	3,003.1927	3,003.1927	0.6158	0.0390	3,030.1991
Maximum	34.0356	39.7656	19.4215	0.0954	10.5584	1.2602	11.8186	4.1004	1.1647	5.2651	0.0000	9,794.6965	9,794.6965	1.3003	0.9398	10,107.2639

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Year	lb/day										lb/day					
2022	2.7971	39.7656	19.4215	0.0954	5.2077	1.2602	6.4679	1.8975	1.1647	3.0622	0.0000	9,794.6965	9,794.6965	1.3003	0.9398	10,107.2638
2023	34.0356	14.8592	17.1536	0.0313	0.3563	0.7045	1.0608	0.0962	0.6629	0.7591	0.0000	3,003.1927	3,003.1927	0.6158	0.0390	3,030.1991
Maximum	34.0356	39.7656	19.4215	0.0954	5.2077	1.2602	6.4679	1.8975	1.1647	3.0622	0.0000	9,794.6965	9,794.6965	1.3003	0.9398	10,107.2638

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.02	0.00	41.54	52.49	0.00	36.57	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724
Energy	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
Mobile	1.6883	1.7614	21.7014	0.0600	7.2907	0.0343	7.3250	1.9358	0.0317	1.9675		6,100.7232	6,100.7232	0.3037	0.1892	6,164.7077
Total	29.7327	4.2485	59.3110	0.1179	7.2907	4.0618	11.3525	1.9358	4.0592	5.9950	374.2502	8,795.2702	9,169.5205	0.3705	0.2714	9,259.6482

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day										lb/day					
Area	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724
Energy	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
Mobile	1.6883	1.7614	21.7014	0.0600	7.2907	0.0343	7.3250	1.9358	0.0317	1.9675		6,100.7232	6,100.7232	0.3037	0.1892	6,164.7077
Total	29.7327	4.2485	59.3110	0.1179	7.2907	4.0618	11.3525	1.9358	4.0592	5.9950	374.2502	8,795.2702	9,169.5205	0.3705	0.2714	9,259.6482

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/24/2022	3/9/2022	5	10	
2	Grading	Grading	3/11/2022	5/11/2022	5	44	
3	Building Construction	Building Construction	5/12/2022	5/16/2023	5	264	
4	Paving	Paving	5/17/2023	5/30/2023	5	10	
5	Architectural Coating	Architectural Coating	5/31/2023	6/27/2023	5	20	

Acres of Grading (Site Preparation Phase): 5

Acres of Grading (Grading Phase): 110

Acres of Paving: 0

Residential Indoor: 218,700; Residential Outdoor: 72,900; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	4,267.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	25.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	0.8371	8.7937	3.5820	8.5300e-003		0.4174	0.4174		0.3840	0.3840		827.0354	827.0354	0.2675		833.7224
Total	0.8371	8.7937	3.5820	8.5300e-003	6.5523	0.4174	6.9697	3.3675	0.3840	3.7515		827.0354	827.0354	0.2675		833.7224

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0110	7.9500e-003	0.0968	2.8000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.5000e-004	9.0500e-003		27.9047	27.9047	7.6000e-004	7.8000e-004	28.1564
Total	0.0110	7.9500e-003	0.0968	2.8000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.5000e-004	9.0500e-003		27.9047	27.9047	7.6000e-004	7.8000e-004	28.1564

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000				0.0000
Off-Road	0.8371	8.7937	3.5820	8.5300e-003		0.4174	0.4174		0.3840	0.3840	0.0000	827.0354	827.0354	0.2675			833.7224
Total	0.8371	8.7937	3.5820	8.5300e-003	2.5554	0.4174	2.9728	1.3133	0.3840	1.6973	0.0000	827.0354	827.0354	0.2675			833.7224

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0110	7.9500e-003	0.0968	2.8000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.5000e-004	9.0500e-003		27.9047	27.9047	7.6000e-004	7.8000e-004	28.1564
Total	0.0110	7.9500e-003	0.0968	2.8000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.5000e-004	9.0500e-003		27.9047	27.9047	7.6000e-004	7.8000e-004	28.1564

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7716	0.0000	8.7716	3.6114	0.0000	3.6114			0.0000			0.0000
Off-Road	2.4756	26.6807	16.3336	0.0389		1.1156	1.1156		1.0264	1.0264		3,767.6232	3,767.6232	1.2185		3,798.0863
Total	2.4756	26.6807	16.3336	0.0389	8.7716	1.1156	9.8872	3.6114	1.0264	4.6377		3,767.6232	3,767.6232	1.2185		3,798.0863

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2921	13.0637	2.8298	0.0558	1.6974	0.1442	1.8415	0.4654	0.1379	0.6033		5,952.6607	5,952.6607	0.0798	0.9377	6,234.0937
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0294	0.0212	0.2581	7.4000e-004	0.0894	4.4000e-004	0.0899	0.0237	4.1000e-004	0.0241		74.4126	74.4126	2.0300e-003	2.0800e-003	75.0838
Total	0.3215	13.0849	3.0879	0.0565	1.7868	0.1446	1.9314	0.4891	0.1383	0.6274		6,027.0733	6,027.0733	0.0818	0.9398	6,309.1775

Mitigated Construction On-Site

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.4209	0.0000	3.4209	1.4084	0.0000	1.4084			0.0000			0.0000
Off-Road	2.4756	26.6807	16.3336	0.0389		1.1156	1.1156		1.0264	1.0264	0.0000	3,767.6232	3,767.6232	1.2185		3,798.0863
Total	2.4756	26.6807	16.3336	0.0389	3.4209	1.1156	4.5365	1.4084	1.0264	2.4348	0.0000	3,767.6232	3,767.6232	1.2185		3,798.0863

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2921	13.0637	2.8298	0.0558	1.6974	0.1442	1.8415	0.4654	0.1379	0.6033		5,952.6607	5,952.6607	0.0798	0.9377	6,234.0937
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0294	0.0212	0.2581	7.4000e-004	0.0894	4.4000e-004	0.0899	0.0237	4.1000e-004	0.0241		74.4126	74.4126	2.0300e-003	2.0800e-003	75.0838
Total	0.3215	13.0849	3.0879	0.0565	1.7868	0.1446	1.9314	0.4891	0.1383	0.6274		6,027.0733	6,027.0733	0.0818	0.9398	6,309.1775

3.4 Building Construction - 2022

Unmitigated Construction On-Site

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0187	0.5346	0.1832	2.1900e-003	0.0769	7.3300e-003	0.0842	0.0221	7.0200e-003	0.0292		231.7869	231.7869	2.4100e-003	0.0344	242.0984
Worker	0.0920	0.0663	0.8066	2.3000e-003	0.2794	1.3900e-003	0.2808	0.0741	1.2800e-003	0.0754		232.5394	232.5394	6.3600e-003	6.5100e-003	234.6370
Total	0.1107	0.6008	0.9898	4.4900e-003	0.3563	8.7200e-003	0.3650	0.0962	8.3000e-003	0.1045		464.3263	464.3263	8.7700e-003	0.0409	476.7354

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

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Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0187	0.5346	0.1832	2.1900e-003	0.0769	7.3300e-003	0.0842	0.0221	7.0200e-003	0.0292		231.7869	231.7869	2.4100e-003	0.0344	242.0984
Worker	0.0920	0.0663	0.8066	2.3000e-003	0.2794	1.3900e-003	0.2808	0.0741	1.2800e-003	0.0754		232.5394	232.5394	6.3600e-003	6.5100e-003	234.6370
Total	0.1107	0.6008	0.9898	4.4900e-003	0.3563	8.7200e-003	0.3650	0.0962	8.3000e-003	0.1045		464.3263	464.3263	8.7700e-003	0.0409	476.7354

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0125	0.4158	0.1669	2.1000e-003	0.0769	3.4300e-003	0.0803	0.0221	3.2800e-003	0.0254		222.8770	222.8770	2.2200e-003	0.0330	232.7553
Worker	0.0856	0.0585	0.7427	2.2300e-003	0.2794	1.3100e-003	0.2808	0.0741	1.2000e-003	0.0753		225.1059	225.1059	5.7200e-003	6.0000e-003	227.0377
Total	0.0981	0.4743	0.9096	4.3300e-003	0.3563	4.7400e-003	0.3610	0.0962	4.4800e-003	0.1007		447.9828	447.9828	7.9400e-003	0.0390	459.7930

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0125	0.4158	0.1669	2.1000e-003	0.0769	3.4300e-003	0.0803	0.0221	3.2800e-003	0.0254		222.8770	222.8770	2.2200e-003	0.0330	232.7553
Worker	0.0856	0.0585	0.7427	2.2300e-003	0.2794	1.3100e-003	0.2808	0.0741	1.2000e-003	0.0753		225.1059	225.1059	5.7200e-003	6.0000e-003	227.0377
Total	0.0981	0.4743	0.9096	4.3300e-003	0.3563	4.7400e-003	0.3610	0.0962	4.4800e-003	0.1007		447.9828	447.9828	7.9400e-003	0.0390	459.7930

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5164	5.0958	7.2921	0.0114		0.2551	0.2551		0.2347	0.2347		1,103.7921	1,103.7921	0.3570		1,112.7168
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.5164	5.0958	7.2921	0.0114		0.2551	0.2551		0.2347	0.2347		1,103.7921	1,103.7921	0.3570		1,112.7168

Unmitigated Construction Off-Site

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0274	0.0187	0.2377	7.1000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		72.0339	72.0339	1.8300e-003	1.9200e-003	72.6521
Total	0.0274	0.0187	0.2377	7.1000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		72.0339	72.0339	1.8300e-003	1.9200e-003	72.6521

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5164	5.0958	7.2921	0.0114		0.2551	0.2551		0.2347	0.2347	0.0000	1,103.7921	1,103.7921	0.3570		1,112.7168
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.5164	5.0958	7.2921	0.0114		0.2551	0.2551		0.2347	0.2347	0.0000	1,103.7921	1,103.7921	0.3570		1,112.7168

Mitigated Construction Off-Site

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0274	0.0187	0.2377	7.1000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		72.0339	72.0339	1.8300e-003	1.9200e-003	72.6521
Total	0.0274	0.0187	0.2377	7.1000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		72.0339	72.0339	1.8300e-003	1.9200e-003	72.6521

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.7892					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	33.9808	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0548	0.0375	0.4754	1.4300e-003	0.1788	8.4000e-004	0.1797	0.0474	7.7000e-004	0.0482	144.0678	144.0678	3.6600e-003	3.8400e-003	145.3041	
Total	0.0548	0.0375	0.4754	1.4300e-003	0.1788	8.4000e-004	0.1797	0.0474	7.7000e-004	0.0482	144.0678	144.0678	3.6600e-003	3.8400e-003	145.3041	

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.7892					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	33.9808	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0548	0.0375	0.4754	1.4300e-003	0.1788	8.4000e-004	0.1797	0.0474	7.7000e-004	0.0482		144.0678	144.0678	3.6600e-003	3.8400e-003	145.3041
Total	0.0548	0.0375	0.4754	1.4300e-003	0.1788	8.4000e-004	0.1797	0.0474	7.7000e-004	0.0482		144.0678	144.0678	3.6600e-003	3.8400e-003	145.3041

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6883	1.7614	21.7014	0.0600	7.2907	0.0343	7.3250	1.9358	0.0317	1.9675		6,100.7232	6,100.7232	0.3037	0.1892	6,164.7077
Unmitigated	1.6883	1.7614	21.7014	0.0600	7.2907	0.0343	7.3250	1.9358	0.0317	1.9675		6,100.7232	6,100.7232	0.3037	0.1892	6,164.7077

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,019.52	995.76	849.96	3,389,483	3,389,483
Total	1,019.52	995.76	849.96	3,389,483	3,389,483

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.614215	0.040586	0.209252	0.126005	0.000000	0.000000	0.000000	0.000000	0.001578	0.001284	0.005047	0.001028	0.001005

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
NaturalGas Unmitigated	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Condo/Townhouse:	6243.28	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
Total		0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse:	6.24328	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
Total		0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724
Unmitigated	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1852					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.1384					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	25.3851	1.8090	28.4526	0.0538		3.9317	3.9317		3.9317	3.9317	374.2502	1,944.0000	2,318.2502	0.0373	0.0687	2,339.6430
Landscaping	0.2685	0.1027	8.9121	4.7000e-004		0.0493	0.0493		0.0493	0.0493		16.0437	16.0437	0.0154		16.4294
Total	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1852					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.1384					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	25.3851	1.8090	28.4526	0.0538		3.9317	3.9317		3.9317	3.9317	374.2502	1,944.0000	2,318.2502	0.0373	0.0687	2,339.6430

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Landscaping	0.2685	0.1027	8.9121	4.7000e-004		0.0493	0.0493		0.0493	0.0493		16.0437	16.0437	0.0154		16.4294
Total	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gateway Heights Residential
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	108.00	Dwelling Unit	17.30	108,000.00	309

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10	Operational Year	2023		
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use - .
- Construction Phase - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Grading -
- Trips and VMT - .
- Vehicle Trips - .
- Fleet Mix - .
- Woodstoves - No woodstoves

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	44.00
tblConstructionPhase	NumDays	300.00	264.00
tblConstructionPhase	NumDays	20.00	10.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.53	0.61
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.3100e-003	0.00
tblFleetMix	MCY	0.02	5.0470e-003
tblFleetMix	MDV	0.14	0.13
tblFleetMix	MH	5.4680e-003	1.0050e-003
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	6.1600e-004	1.5780e-003
tblFleetMix	SBUS	1.1000e-003	1.0280e-003
tblFleetMix	UBUS	3.1500e-004	1.2840e-003
tblGrading	MaterialExported	0.00	34,137.00
tblLandUse	LotAcreage	6.75	17.30
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	WorkerTripNumber	78.00	25.00
tblVehicleTrips	ST_TR	8.14	9.22

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	SU_TR	6.28	7.87
tblVehicleTrips	WD_TR	7.32	9.44
tblWoodstoves	NumberCatalytic	5.40	0.00
tblWoodstoves	NumberNoncatalytic	5.40	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.8138	39.0865	19.4063	0.0955	10.5584	1.2600	11.8184	4.1004	1.1645	5.2649	0.0000	9,797.8945	9,797.8945	1.3010	0.9390	10,110.2502
2023	34.0392	14.8333	17.3201	0.0315	0.3563	0.7045	1.0608	0.0962	0.6629	0.7591	0.0000	3,025.9702	3,025.9702	0.6159	0.0387	3,052.9046
Maximum	34.0392	39.0865	19.4063	0.0955	10.5584	1.2600	11.8184	4.1004	1.1645	5.2649	0.0000	9,797.8945	9,797.8945	1.3010	0.9390	10,110.2502

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.8138	39.0865	19.4063	0.0955	5.2077	1.2600	6.4677	1.8975	1.1645	3.0620	0.0000	9,797.8945	9,797.8945	1.3010	0.9390	10,110.2502
2023	34.0392	14.8333	17.3201	0.0315	0.3563	0.7045	1.0608	0.0962	0.6629	0.7591	0.0000	3,025.9702	3,025.9702	0.6159	0.0387	3,052.9046
Maximum	34.0392	39.0865	19.4063	0.0955	5.2077	1.2600	6.4677	1.8975	1.1645	3.0620	0.0000	9,797.8945	9,797.8945	1.3010	0.9390	10,110.2502

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.02	0.00	41.55	52.49	0.00	36.57	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724
Energy	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
Mobile	2.0520	1.6872	25.3532	0.0659	7.2907	0.0343	7.3250	1.9358	0.0317	1.9675		6,693.5319	6,693.5319	0.2961	0.1847	6,755.9893
Total	30.0964	4.1743	62.9627	0.1238	7.2907	4.0618	11.3525	1.9358	4.0592	5.9950	374.2502	9,388.0789	9,762.3291	0.3629	0.2669	9,850.9299

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724
Energy	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
Mobile	2.0520	1.6872	25.3532	0.0659	7.2907	0.0343	7.3250	1.9358	0.0317	1.9675		6,693.5319	6,693.5319	0.2961	0.1847	6,755.9893
Total	30.0964	4.1743	62.9627	0.1238	7.2907	4.0618	11.3525	1.9358	4.0592	5.9950	374.2502	9,388.0789	9,762.3291	0.3629	0.2669	9,850.9299

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/24/2022	3/9/2022	5	10	
2	Grading	Grading	3/11/2022	5/11/2022	5	44	
3	Building Construction	Building Construction	5/12/2022	5/16/2023	5	264	
4	Paving	Paving	5/17/2023	5/30/2023	5	10	
5	Architectural Coating	Architectural Coating	5/31/2023	6/27/2023	5	20	

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 5

Acres of Grading (Grading Phase): 110

Acres of Paving: 0

Residential Indoor: 218,700; Residential Outdoor: 72,900; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	4,267.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	9	25.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	0.8371	8.7937	3.5820	8.5300e-003		0.4174	0.4174		0.3840	0.3840		827.0354	827.0354	0.2675		833.7224
Total	0.8371	8.7937	3.5820	8.5300e-003	6.5523	0.4174	6.9697	3.3675	0.3840	3.7515		827.0354	827.0354	0.2675		833.7224

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Worker	0.0118	7.6600e-003	0.1194	3.0000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.5000e-004	9.0500e-003		30.8068	30.8068	7.7000e-004	7.6000e-004	31.0533
Total	0.0118	7.6600e-003	0.1194	3.0000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.5000e-004	9.0500e-003		30.8068	30.8068	7.7000e-004	7.6000e-004	31.0533

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	0.8371	8.7937	3.5820	8.5300e-003		0.4174	0.4174		0.3840	0.3840	0.0000	827.0354	827.0354	0.2675		833.7224
Total	0.8371	8.7937	3.5820	8.5300e-003	2.5554	0.4174	2.9728	1.3133	0.3840	1.6973	0.0000	827.0354	827.0354	0.2675		833.7224

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0118	7.6600e-003	0.1194	3.0000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.5000e-004	9.0500e-003		30.8068	30.8068	7.7000e-004	7.6000e-004	31.0533

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	0.0118	7.6600e-003	0.1194	3.0000e-004	0.0335	1.7000e-004	0.0337	8.8900e-003	1.5000e-004	9.0500e-003		30.8068	30.8068	7.7000e-004	7.6000e-004	31.0533
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3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.7716	0.0000	8.7716	3.6114	0.0000	3.6114			0.0000			0.0000
Off-Road	2.4756	26.6807	16.3336	0.0389		1.1156	1.1156		1.0264	1.0264		3,767.6232	3,767.6232	1.2185		3,798.0863
Total	2.4756	26.6807	16.3336	0.0389	8.7716	1.1156	9.8872	3.6114	1.0264	4.6377		3,767.6232	3,767.6232	1.2185		3,798.0863

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3067	12.3854	2.7542	0.0558	1.6974	0.1440	1.8413	0.4654	0.1377	0.6031		5,948.1198	5,948.1198	0.0805	0.9370	6,229.3552
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0315	0.0204	0.3185	8.1000e-004	0.0894	4.4000e-004	0.0899	0.0237	4.1000e-004	0.0241		82.1515	82.1515	2.0500e-003	2.0300e-003	82.8087
Total	0.3382	12.4058	3.0727	0.0566	1.7868	0.1444	1.9312	0.4891	0.1381	0.6272		6,030.2714	6,030.2714	0.0825	0.9390	6,312.1639

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.4209	0.0000	3.4209	1.4084	0.0000	1.4084			0.0000			0.0000
Off-Road	2.4756	26.6807	16.3336	0.0389		1.1156	1.1156		1.0264	1.0264	0.0000	3,767.6232	3,767.6232	1.2185		3,798.0863
Total	2.4756	26.6807	16.3336	0.0389	3.4209	1.1156	4.5365	1.4084	1.0264	2.4348	0.0000	3,767.6232	3,767.6232	1.2185		3,798.0863

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3067	12.3854	2.7542	0.0558	1.6974	0.1440	1.8413	0.4654	0.1377	0.6031		5,948.1198	5,948.1198	0.0805	0.9370	6,229.3552
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0315	0.0204	0.3185	8.1000e-004	0.0894	4.4000e-004	0.0899	0.0237	4.1000e-004	0.0241		82.1515	82.1515	2.0500e-003	2.0300e-003	82.8087
Total	0.3382	12.4058	3.0727	0.0566	1.7868	0.1444	1.9312	0.4891	0.1381	0.6272		6,030.2714	6,030.2714	0.0825	0.9390	6,312.1639

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0195	0.5074	0.1764	2.1800e-003	0.0769	7.3200e-003	0.0842	0.0221	7.0000e-003	0.0291		231.5344	231.5344	2.4500e-003	0.0343	241.8277
Worker	0.0985	0.0638	0.9953	2.5400e-003	0.2794	1.3900e-003	0.2808	0.0741	1.2800e-003	0.0754		256.7235	256.7235	6.4000e-003	6.3600e-003	258.7773
Total	0.1180	0.5713	1.1717	4.7200e-003	0.3563	8.7100e-003	0.3650	0.0962	8.2800e-003	0.1045		488.2579	488.2579	8.8500e-003	0.0407	500.6050

Mitigated Construction On-Site

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0195	0.5074	0.1764	2.1800e-003	0.0769	7.3200e-003	0.0842	0.0221	7.0000e-003	0.0291		231.5344	231.5344	2.4500e-003	0.0343	241.8277
Worker	0.0985	0.0638	0.9953	2.5400e-003	0.2794	1.3900e-003	0.2808	0.0741	1.2800e-003	0.0754		256.7235	256.7235	6.4000e-003	6.3600e-003	258.7773
Total	0.1180	0.5713	1.1717	4.7200e-003	0.3563	8.7100e-003	0.3650	0.0962	8.2800e-003	0.1045		488.2579	488.2579	8.8500e-003	0.0407	500.6050

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0135	0.3921	0.1614	2.1000e-003	0.0769	3.4100e-003	0.0803	0.0221	3.2700e-003	0.0254		222.3252	222.3252	2.2700e-003	0.0329	232.1721
Worker	0.0913	0.0564	0.9147	2.4600e-003	0.2794	1.3100e-003	0.2808	0.0741	1.2000e-003	0.0753		248.4351	248.4351	5.7400e-003	5.8600e-003	250.3264
Total	0.1048	0.4485	1.0761	4.5600e-003	0.3563	4.7200e-003	0.3610	0.0962	4.4700e-003	0.1007		470.7603	470.7603	8.0100e-003	0.0387	482.4985

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0135	0.3921	0.1614	2.1000e-003	0.0769	3.4100e-003	0.0803	0.0221	3.2700e-003	0.0254		222.3252	222.3252	2.2700e-003	0.0329	232.1721
Worker	0.0913	0.0564	0.9147	2.4600e-003	0.2794	1.3100e-003	0.2808	0.0741	1.2000e-003	0.0753		248.4351	248.4351	5.7400e-003	5.8600e-003	250.3264
Total	0.1048	0.4485	1.0761	4.5600e-003	0.3563	4.7200e-003	0.3610	0.0962	4.4700e-003	0.1007		470.7603	470.7603	8.0100e-003	0.0387	482.4985

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5164	5.0958	7.2921	0.0114		0.2551	0.2551		0.2347	0.2347		1,103.7921	1,103.7921	0.3570		1,112.7168
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.5164	5.0958	7.2921	0.0114		0.2551	0.2551		0.2347	0.2347		1,103.7921	1,103.7921	0.3570		1,112.7168

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0292	0.0181	0.2927	7.9000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		79.4992	79.4992	1.8400e-003	1.8800e-003	80.1045
Total	0.0292	0.0181	0.2927	7.9000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		79.4992	79.4992	1.8400e-003	1.8800e-003	80.1045

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5164	5.0958	7.2921	0.0114		0.2551	0.2551		0.2347	0.2347	0.0000	1,103.7921	1,103.7921	0.3570		1,112.7168
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.5164	5.0958	7.2921	0.0114		0.2551	0.2551		0.2347	0.2347	0.0000	1,103.7921	1,103.7921	0.3570		1,112.7168

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0292	0.0181	0.2927	7.9000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		79.4992	79.4992	1.8400e-003	1.8800e-003	80.1045
Total	0.0292	0.0181	0.2927	7.9000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		79.4992	79.4992	1.8400e-003	1.8800e-003	80.1045

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.7892					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	33.9808	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0584	0.0361	0.5854	1.5700e-003	0.1788	8.4000e-004	0.1797	0.0474	7.7000e-004	0.0482		158.9985	158.9985	3.6800e-003	3.7500e-003	160.2089
Total	0.0584	0.0361	0.5854	1.5700e-003	0.1788	8.4000e-004	0.1797	0.0474	7.7000e-004	0.0482		158.9985	158.9985	3.6800e-003	3.7500e-003	160.2089

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.7892					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	33.9808	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0584	0.0361	0.5854	1.5700e-003	0.1788	8.4000e-004	0.1797	0.0474	7.7000e-004	0.0482		158.9985	158.9985	3.6800e-003	3.7500e-003	160.2089
Total	0.0584	0.0361	0.5854	1.5700e-003	0.1788	8.4000e-004	0.1797	0.0474	7.7000e-004	0.0482		158.9985	158.9985	3.6800e-003	3.7500e-003	160.2089

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.0520	1.6872	25.3532	0.0659	7.2907	0.0343	7.3250	1.9358	0.0317	1.9675		6,693.5319	6,693.5319	0.2961	0.1847	6,755.9893
Unmitigated	2.0520	1.6872	25.3532	0.0659	7.2907	0.0343	7.3250	1.9358	0.0317	1.9675		6,693.5319	6,693.5319	0.2961	0.1847	6,755.9893

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,019.52	995.76	849.96	3,389,483	3,389,483
Total	1,019.52	995.76	849.96	3,389,483	3,389,483

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.614215	0.040586	0.209252	0.126005	0.000000	0.000000	0.000000	0.000000	0.001578	0.001284	0.005047	0.001028	0.001005

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day											lb/day					
NaturalGas Mitigated	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
NaturalGas Unmitigated	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682

5.2 Energy by Land Use - NaturalGas

Unmitigated

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse:	6243.28	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
Total		0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse:	6.24328	0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682
Total		0.0673	0.5754	0.2448	3.6700e-003		0.0465	0.0465		0.0465	0.0465		734.5034	734.5034	0.0141	0.0135	738.8682

6.0 Area Detail

6.1 Mitigation Measures Area

ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day										lb/day					
Mitigated	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724
Unmitigated	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1852					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.1384					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	25.3851	1.8090	28.4526	0.0538		3.9317	3.9317		3.9317	3.9317	374.2502	1,944.0000	2,318.2502	0.0373	0.0687	2,339.6430
Landscaping	0.2685	0.1027	8.9121	4.7000e-004		0.0493	0.0493		0.0493	0.0493		16.0437	16.0437	0.0154		16.4294
Total	27.9771	1.9117	37.3647	0.0542		3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating	0.1852				0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.1384				0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	25.3851	1.8090	28.4526	0.0538	3.9317	3.9317		3.9317	3.9317	374.2502	1,944.0000	2,318.2502	0.0373	0.0687	2,339.6430
Landscaping	0.2685	0.1027	8.9121	4.7000e-004	0.0493	0.0493		0.0493	0.0493		16.0437	16.0437	0.0154		16.4294
Total	27.9771	1.9117	37.3647	0.0542	3.9810	3.9810		3.9810	3.9810	374.2502	1,960.0437	2,334.2939	0.0527	0.0687	2,356.0724

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

11.0 Vegetation

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gateway Heights Residential
Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	108.00	Dwelling Unit	17.30	108,000.00	309

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10	Operational Year	2023		
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use - .
- Construction Phase - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Off-road Equipment - .
- Grading -
- Trips and VMT - .
- Vehicle Trips - .
- Fleet Mix - .

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Woodstoves - No woodstoves

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	44.00
tblConstructionPhase	NumDays	300.00	264.00
tblConstructionPhase	NumDays	20.00	10.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.53	0.61
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.3100e-003	0.00
tblFleetMix	MCY	0.02	5.0470e-003
tblFleetMix	MDV	0.14	0.13
tblFleetMix	MH	5.4680e-003	1.0050e-003
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	6.1600e-004	1.5780e-003
tblFleetMix	SBUS	1.1000e-003	1.0280e-003
tblFleetMix	UBUS	3.1500e-004	1.2840e-003
tblGrading	MaterialExported	0.00	34,137.00
tblLandUse	LotAcreage	6.75	17.30
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	WorkerTripNumber	78.00	25.00
tblVehicleTrips	ST_TR	8.14	9.22
tblVehicleTrips	SU_TR	6.28	7.87
tblVehicleTrips	WD_TR	7.32	9.44
tblWoodstoves	NumberCatalytic	5.40	0.00
tblWoodstoves	NumberNoncatalytic	5.40	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2173	2.2728	1.8974	4.7700e-003	0.2939	0.0981	0.3920	0.1149	0.0918	0.2067	0.0000	428.4098	428.4098	0.0742	0.0219	436.7787
2023	0.4239	0.7595	0.8946	1.6200e-003	0.0192	0.0362	0.0554	5.1800e-003	0.0340	0.0392	0.0000	141.5839	141.5839	0.0289	1.7600e-003	142.8315
Maximum	0.4239	2.2728	1.8974	4.7700e-003	0.2939	0.0981	0.3920	0.1149	0.0918	0.2067	0.0000	428.4098	428.4098	0.0742	0.0219	436.7787

Mitigated Construction

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2173	2.2728	1.8974	4.7700e-003	0.1562	0.0981	0.2543	0.0561	0.0918	0.1479	0.0000	428.4095	428.4095	0.0742	0.0219	436.7783
2023	0.4239	0.7595	0.8946	1.6200e-003	0.0192	0.0362	0.0554	5.1800e-003	0.0340	0.0392	0.0000	141.5837	141.5837	0.0289	1.7600e-003	142.8314
Maximum	0.4239	2.2728	1.8974	4.7700e-003	0.1562	0.0981	0.2543	0.0561	0.0918	0.1479	0.0000	428.4095	428.4095	0.0742	0.0219	436.7783

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	43.98	0.00	30.78	48.93	0.00	23.89	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2022	4-30-2022	0.8164	0.8164
2	5-1-2022	7-31-2022	0.6856	0.6856
3	8-1-2022	10-31-2022	0.5920	0.5920
4	11-1-2022	1-31-2023	0.5759	0.5759
5	2-1-2023	4-30-2023	0.5252	0.5252
6	5-1-2023	7-31-2023	0.4764	0.4764
		Highest	0.8164	0.8164

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Area	0.7749	0.0355	1.4697	7.3000e-004		0.0553	0.0553		0.0553	0.0553	4.2439	23.8639	28.1078	2.1700e-003	7.8000e-004	28.3942
Energy	0.0123	0.1050	0.0447	6.7000e-004		8.4900e-003	8.4900e-003		8.4900e-003	8.4900e-003	0.0000	216.8693	216.8693	0.0104	3.2000e-003	218.0834
Mobile	0.3041	0.3180	3.9948	0.0109	1.2695	6.0700e-003	1.2755	0.3375	5.6000e-003	0.3431	0.0000	999.9603	999.9603	0.0486	0.0308	1,010.3480
Waste						0.0000	0.0000		0.0000	0.0000	10.0846	0.0000	10.0846	0.5960	0.0000	24.9842
Water						0.0000	0.0000		0.0000	0.0000	2.2324	24.9897	27.2221	0.2314	5.6700e-003	34.6966
Total	1.0914	0.4584	5.5092	0.0123	1.2695	0.0699	1.3393	0.3375	0.0694	0.4069	16.5609	1,265.6832	1,282.2441	0.8885	0.0404	1,316.5063

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7749	0.0355	1.4697	7.3000e-004		0.0553	0.0553		0.0553	0.0553	4.2439	23.8639	28.1078	2.1700e-003	7.8000e-004	28.3942
Energy	0.0123	0.1050	0.0447	6.7000e-004		8.4900e-003	8.4900e-003		8.4900e-003	8.4900e-003	0.0000	216.8693	216.8693	0.0104	3.2000e-003	218.0834
Mobile	0.3041	0.3180	3.9948	0.0109	1.2695	6.0700e-003	1.2755	0.3375	5.6000e-003	0.3431	0.0000	999.9603	999.9603	0.0486	0.0308	1,010.3480
Waste						0.0000	0.0000		0.0000	0.0000	10.0846	0.0000	10.0846	0.5960	0.0000	24.9842
Water						0.0000	0.0000		0.0000	0.0000	2.2324	24.9897	27.2221	0.2314	5.6700e-003	34.6966
Total	1.0914	0.4584	5.5092	0.0123	1.2695	0.0699	1.3393	0.3375	0.0694	0.4069	16.5609	1,265.6832	1,282.2441	0.8885	0.0404	1,316.5063

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/24/2022	3/9/2022	5	10	
2	Grading	Grading	3/11/2022	5/11/2022	5	44	
3	Building Construction	Building Construction	5/12/2022	5/16/2023	5	264	
4	Paving	Paving	5/17/2023	5/30/2023	5	10	
5	Architectural Coating	Architectural Coating	5/31/2023	6/27/2023	5	20	

Acres of Grading (Site Preparation Phase): 5

Acres of Grading (Grading Phase): 110

Acres of Paving: 0

Residential Indoor: 218,700; Residential Outdoor: 72,900; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	4,267.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	25.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0328	0.0000	0.0328	0.0168	0.0000	0.0168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	4.1900e-003	0.0440	0.0179	4.0000e-005		2.0900e-003	2.0900e-003		1.9200e-003	1.9200e-003	0.0000	3.7514	3.7514	1.2100e-003	0.0000	3.7817
Total	4.1900e-003	0.0440	0.0179	4.0000e-005	0.0328	2.0900e-003	0.0349	0.0168	1.9200e-003	0.0188	0.0000	3.7514	3.7514	1.2100e-003	0.0000	3.7817

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1295	0.1295	0.0000	0.0000	0.1307
Total	5.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1295	0.1295	0.0000	0.0000	0.1307

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0128	0.0000	0.0128	6.5700e-003	0.0000	6.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	4.1900e-003	0.0440	0.0179	4.0000e-005		2.0900e-003	2.0900e-003		1.9200e-003	1.9200e-003	0.0000	3.7514	3.7514	1.2100e-003	0.0000	3.7817
Total	4.1900e-003	0.0440	0.0179	4.0000e-005	0.0128	2.0900e-003	0.0149	6.5700e-003	1.9200e-003	8.4900e-003	0.0000	3.7514	3.7514	1.2100e-003	0.0000	3.7817

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1295	0.1295	0.0000	0.0000	0.1307
Total	5.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1295	0.1295	0.0000	0.0000	0.1307

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1930	0.0000	0.1930	0.0795	0.0000	0.0795	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	0.0545	0.5870	0.3593	8.6000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	75.1945	75.1945	0.0243	0.0000	75.8025
Total	0.0545	0.5870	0.3593	8.6000e-004	0.1930	0.0245	0.2175	0.0795	0.0226	0.1020	0.0000	75.1945	75.1945	0.0243	0.0000	75.8025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.6100e-003	0.2873	0.0613	1.2300e-003	0.0368	3.1700e-003	0.0400	0.0101	3.0300e-003	0.0131	0.0000	118.7510	118.7510	1.6000e-003	0.0187	124.3656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.8000e-004	5.9900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5198	1.5198	4.0000e-005	4.0000e-005	1.5335
Total	7.2300e-003	0.2878	0.0673	1.2500e-003	0.0387	3.1800e-003	0.0419	0.0106	3.0400e-003	0.0137	0.0000	120.2708	120.2708	1.6400e-003	0.0188	125.8991

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0753	0.0000	0.0753	0.0310	0.0000	0.0310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	0.0545	0.5870	0.3593	8.6000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	75.1944	75.1944	0.0243	0.0000	75.8024
Total	0.0545	0.5870	0.3593	8.6000e-004	0.0753	0.0245	0.0998	0.0310	0.0226	0.0536	0.0000	75.1944	75.1944	0.0243	0.0000	75.8024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.6100e-003	0.2873	0.0613	1.2300e-003	0.0368	3.1700e-003	0.0400	0.0101	3.0300e-003	0.0131	0.0000	118.7510	118.7510	1.6000e-003	0.0187	124.3656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.8000e-004	5.9900e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5198	1.5198	4.0000e-005	4.0000e-005	1.5335
Total	7.2300e-003	0.2878	0.0673	1.2500e-003	0.0387	3.1800e-003	0.0419	0.0106	3.0400e-003	0.0137	0.0000	120.2708	120.2708	1.6400e-003	0.0188	125.8991

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1425	1.3039	1.3663	2.2500e-003		0.0676	0.0676		0.0636	0.0636	0.0000	193.4906	193.4906	0.0464	0.0000	194.6495

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	0.1425	1.3039	1.3663	2.2500e-003		0.0676	0.0676		0.0636	0.0636	0.0000	193.4906	193.4906	0.0464	0.0000	194.6495
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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5900e-003	0.0445	0.0150	1.8000e-004	6.3300e-003	6.1000e-004	6.9400e-003	1.8300e-003	5.9000e-004	2.4100e-003	0.0000	17.5468	17.5468	1.8000e-004	2.6000e-003	18.3273
Worker	7.2900e-003	5.6800e-003	0.0710	2.0000e-004	0.0229	1.2000e-004	0.0231	6.0900e-003	1.1000e-004	6.2000e-003	0.0000	18.0262	18.0262	4.8000e-004	5.0000e-004	18.1880
Total	8.8800e-003	0.0502	0.0860	3.8000e-004	0.0293	7.3000e-004	0.0300	7.9200e-003	7.0000e-004	8.6100e-003	0.0000	35.5730	35.5730	6.6000e-004	3.1000e-003	36.5153

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1425	1.3039	1.3663	2.2500e-003		0.0676	0.0676		0.0636	0.0636	0.0000	193.4904	193.4904	0.0464	0.0000	194.6492
Total	0.1425	1.3039	1.3663	2.2500e-003		0.0676	0.0676		0.0636	0.0636	0.0000	193.4904	193.4904	0.0464	0.0000	194.6492

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5900e-003	0.0445	0.0150	1.8000e-004	6.3300e-003	6.1000e-004	6.9400e-003	1.8300e-003	5.9000e-004	2.4100e-003	0.0000	17.5468	17.5468	1.8000e-004	2.6000e-003	18.3273
Worker	7.2900e-003	5.6800e-003	0.0710	2.0000e-004	0.0229	1.2000e-004	0.0231	6.0900e-003	1.1000e-004	6.2000e-003	0.0000	18.0262	18.0262	4.8000e-004	5.0000e-004	18.1880
Total	8.8800e-003	0.0502	0.0860	3.8000e-004	0.0293	7.3000e-004	0.0300	7.9200e-003	7.0000e-004	8.6100e-003	0.0000	35.5730	35.5730	6.6000e-004	3.1000e-003	36.5153

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0763	0.6977	0.7878	1.3100e-003		0.0339	0.0339		0.0319	0.0319	0.0000	112.4253	112.4253	0.0267	0.0000	113.0939
Total	0.0763	0.6977	0.7878	1.3100e-003		0.0339	0.0339		0.0319	0.0319	0.0000	112.4253	112.4253	0.0267	0.0000	113.0939

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.3000e-004	0.0200	7.9500e-003	1.0000e-004	3.6800e-003	1.7000e-004	3.8400e-003	1.0600e-003	1.6000e-004	1.2200e-003	0.0000	9.7922	9.7922	1.0000e-004	1.4500e-003	10.2261
Worker	3.9300e-003	2.9100e-003	0.0380	1.1000e-004	0.0133	6.0000e-005	0.0134	3.5400e-003	6.0000e-005	3.6000e-003	0.0000	10.1347	10.1347	2.5000e-004	2.7000e-004	10.2212
Total	4.5600e-003	0.0229	0.0459	2.1000e-004	0.0170	2.3000e-004	0.0172	4.6000e-003	2.2000e-004	4.8200e-003	0.0000	19.9269	19.9269	3.5000e-004	1.7200e-003	20.4474

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0763	0.6977	0.7878	1.3100e-003		0.0339	0.0339		0.0319	0.0319	0.0000	112.4252	112.4252	0.0267	0.0000	113.0938
Total	0.0763	0.6977	0.7878	1.3100e-003		0.0339	0.0339		0.0319	0.0319	0.0000	112.4252	112.4252	0.0267	0.0000	113.0938

Mitigated Construction Off-Site

Gateway Heights Residential - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.3000e-004	0.0200	7.9500e-003	1.0000e-004	3.6800e-003	1.7000e-004	3.8400e-003	1.0600e-003	1.6000e-004	1.2200e-003	0.0000	9.7922	9.7922	1.0000e-004	1.4500e-003	10.2261
Worker	3.9300e-003	2.9100e-003	0.0380	1.1000e-004	0.0133	6.0000e-005	0.0134	3.5400e-003	6.0000e-005	3.6000e-003	0.0000	10.1347	10.1347	2.5000e-004	2.7000e-004	10.2212
Total	4.5600e-003	0.0229	0.0459	2.1000e-004	0.0170	2.3000e-004	0.0172	4.6000e-003	2.2000e-004	4.8200e-003	0.0000	19.9269	19.9269	3.5000e-004	1.7200e-003	20.4474

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5800e-003	0.0255	0.0365	6.0000e-005		1.2800e-003	1.2800e-003		1.1700e-003	1.1700e-003	0.0000	5.0067	5.0067	1.6200e-003	0.0000	5.0472
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.5800e-003	0.0255	0.0365	6.0000e-005		1.2800e-003	1.2800e-003		1.1700e-003	1.1700e-003	0.0000	5.0067	5.0067	1.6200e-003	0.0000	5.0472

Unmitigated Construction Off-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	1.0000e-004	1.2500e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3343	0.3343	1.0000e-005	1.0000e-005	0.3372
Total	1.3000e-004	1.0000e-004	1.2500e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3343	0.3343	1.0000e-005	1.0000e-005	0.3372

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5800e-003	0.0255	0.0365	6.0000e-005		1.2800e-003	1.2800e-003		1.1700e-003	1.1700e-003	0.0000	5.0067	5.0067	1.6200e-003	0.0000	5.0472
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.5800e-003	0.0255	0.0365	6.0000e-005		1.2800e-003	1.2800e-003		1.1700e-003	1.1700e-003	0.0000	5.0067	5.0067	1.6200e-003	0.0000	5.0472

Mitigated Construction Off-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	1.0000e-004	1.2500e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3343	0.3343	1.0000e-005	1.0000e-005	0.3372
Total	1.3000e-004	1.0000e-004	1.2500e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3343	0.3343	1.0000e-005	1.0000e-005	0.3372

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	0.3398	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571

Unmitigated Construction Off-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	3.8000e-004	5.0100e-003	1.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.7000e-004	0.0000	1.3374	1.3374	3.0000e-005	4.0000e-005	1.3488
Total	5.2000e-004	3.8000e-004	5.0100e-003	1.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.7000e-004	0.0000	1.3374	1.3374	3.0000e-005	4.0000e-005	1.3488

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	0.3398	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571

Mitigated Construction Off-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	3.8000e-004	5.0100e-003	1.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.7000e-004	0.0000	1.3374	1.3374	3.0000e-005	4.0000e-005	1.3488
Total	5.2000e-004	3.8000e-004	5.0100e-003	1.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.7000e-004	0.0000	1.3374	1.3374	3.0000e-005	4.0000e-005	1.3488

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3041	0.3180	3.9948	0.0109	1.2695	6.0700e-003	1.2755	0.3375	5.6000e-003	0.3431	0.0000	999.9603	999.9603	0.0486	0.0308	1,010.3480
Unmitigated	0.3041	0.3180	3.9948	0.0109	1.2695	6.0700e-003	1.2755	0.3375	5.6000e-003	0.3431	0.0000	999.9603	999.9603	0.0486	0.0308	1,010.3480

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,019.52	995.76	849.96	3,389,483	3,389,483
Total	1,019.52	995.76	849.96	3,389,483	3,389,483

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	M
Condo/Townhouse	0.614215	0.040586	0.209252	0.126005	0.000000	0.000000	0.000000	0.000000	0.001578	0.001284	0.005047	0.001028	0.0

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	95.2640	95.2640	8.0400e-003	9.7000e-004	95.7555
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	95.2640	95.2640	8.0400e-003	9.7000e-004	95.7555

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

NaturalGas Mitigated	0.0123	0.1050	0.0447	6.7000e-004	8.4900e-003	8.4900e-003	8.4900e-003	8.4900e-003	0.0000	121.6053	121.6053	2.3300e-003	2.2300e-003	122.3279
NaturalGas Unmitigated	0.0123	0.1050	0.0447	6.7000e-004	8.4900e-003	8.4900e-003	8.4900e-003	8.4900e-003	0.0000	121.6053	121.6053	2.3300e-003	2.2300e-003	122.3279

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	2.2788e+06	0.0123	0.1050	0.0447	6.7000e-004		8.4900e-003	8.4900e-003		8.4900e-003	8.4900e-003	0.0000	121.6053	121.6053	2.3300e-003	2.2300e-003	122.3279
Total		0.0123	0.1050	0.0447	6.7000e-004		8.4900e-003	8.4900e-003		8.4900e-003	8.4900e-003	0.0000	121.6053	121.6053	2.3300e-003	2.2300e-003	122.3279

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	2.2788e+06	0.0123	0.1050	0.0447	6.7000e-004		8.4900e-003	8.4900e-003		8.4900e-003	8.4900e-003	0.0000	121.6053	121.6053	2.3300e-003	2.2300e-003	122.3279
Total		0.0123	0.1050	0.0447	6.7000e-004		8.4900e-003	8.4900e-003		8.4900e-003	8.4900e-003	0.0000	121.6053	121.6053	2.3300e-003	2.2300e-003	122.3279

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

Gateway Heights Residential - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	537166	95.2640	8.0400e-003	9.7000e-004	95.7555
Total		95.2640	8.0400e-003	9.7000e-004	95.7555

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	537166	95.2640	8.0400e-003	9.7000e-004	95.7555
Total		95.2640	8.0400e-003	9.7000e-004	95.7555

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7749	0.0355	1.4697	7.3000e-004		0.0553	0.0553		0.0553	0.0553	4.2439	23.8639	28.1078	2.1700e-003	7.8000e-004	28.3942
Unmitigated	0.7749	0.0355	1.4697	7.3000e-004		0.0553	0.0553		0.0553	0.0553	4.2439	23.8639	28.1078	2.1700e-003	7.8000e-004	28.3942

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3903					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3173	0.0226	0.3557	6.7000e-004		0.0492	0.0492		0.0492	0.0492	4.2439	22.0446	26.2885	4.2000e-004	7.8000e-004	26.5311
Landscaping	0.0336	0.0128	1.1140	6.0000e-005		6.1700e-003	6.1700e-003		6.1700e-003	6.1700e-003	0.0000	1.8193	1.8193	1.7500e-003	0.0000	1.8631
Total	0.7749	0.0355	1.4697	7.3000e-004		0.0553	0.0553		0.0553	0.0553	4.2439	23.8639	28.1078	2.1700e-003	7.8000e-004	28.3942

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3903					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3173	0.0226	0.3557	6.7000e-004		0.0492	0.0492		0.0492	0.0492	4.2439	22.0446	26.2885	4.2000e-004	7.8000e-004	26.5311
Landscaping	0.0336	0.0128	1.1140	6.0000e-005		6.1700e-003	6.1700e-003		6.1700e-003	6.1700e-003	0.0000	1.8193	1.8193	1.7500e-003	0.0000	1.8631
Total	0.7749	0.0355	1.4697	7.3000e-004		0.0553	0.0553		0.0553	0.0553	4.2439	23.8639	28.1078	2.1700e-003	7.8000e-004	28.3942

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	27.2221	0.2314	5.6700e-003	34.6966
Unmitigated	27.2221	0.2314	5.6700e-003	34.6966

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	7.03663 / 4.43614	27.2221	0.2314	5.6700e-003	34.6966
Total		27.2221	0.2314	5.6700e-003	34.6966

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	7.03663 / 4.43614	27.2221	0.2314	5.6700e-003	34.6966
Total		27.2221	0.2314	5.6700e-003	34.6966

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8.0 Waste Detail

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	10.0846	0.5960	0.0000	24.9842
Unmitigated	10.0846	0.5960	0.0000	24.9842

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	49.68	10.0846	0.5960	0.0000	24.9842
Total		10.0846	0.5960	0.0000	24.9842

Mitigated

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	49.68	10.0846	0.5960	0.0000	24.9842
Total		10.0846	0.5960	0.0000	24.9842

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Appendix B

Biological Resources Report, Jurisdictional Delineation, Rare Plant Survey Report, Burrowing Owl Survey Report, and Determination of Biologically Equivalent or Superior Preservation (DBESP) Report

October 21, 2022

11675

Shizao Zheng
1378 West Zhorgshan Road
Ningbo City, Zhejiang Province
China

Subject: Biological Resources Letter Report and MSHCP Consistency for the Gateway Heights Project, City of Moreno Valley, Riverside County, California

Dear Mr. Zheng:

This biological resources habitat assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis letter report describes the existing biological conditions of the proposed Gateway Heights Project (project) site and provides an assessment of potential biological impacts. This report was initially submitted in 2019 but underwent a redesign including a revised project name, description, footprint, and impact analysis, all of which have been updated in this report. The proposed project and potential impacts to special-status biological resources are analyzed in the context of the California Environmental Quality Act (CEQA) and the MSHCP. This report describes the project site, the general biological reconnaissance survey, the focused burrowing owl (*Athene cunicularia*) surveys special-status biological resources present or potentially present on site, potential constraints to development that may be posed by biological resources on the project site, and recommended mitigation. This report also provides an MSHCP consistency assessment including the following requirements of the MSHCP (relevant MSHCP sections are identified in parentheses):

- Riparian/riverine, vernal pool, and fairy shrimp requirements (Section 6.1.2)
- Species survey requirements (Section 6.3.2)
- Urban/wildlife interface guidelines (Section 6.1.4)

1 Project Location

The 32.8-acre project site is comprised of Assessor's Parcel Number 256-150-001 and 256-040-009, as well as rights-of-way, and is located north of Jennings Court and east of Morton Road in Riverside County (Figure 1, Project Location; figures can be found in Attachment A, Figures). The project site occurs within U.S. Geological Survey 7.5-minute Riverside East quadrangle map, Section 34 of Township 2 South, Range 4 West. The approximate center of the property is at longitude 117° 17'39.77"W and latitude 33° 57'34.95"N.

The proposed project includes the residential development of 108 detached condominium units, parking, open space, utility lines, fuel modification zones (FMZs), and storm drain lines. The project also includes an undercrossing beneath Morton Road. The collection system will begin on the east side of Morton Road and consist of a concrete lined drop in the channel bottom and concrete headwall structure to result in no increase to water surface elevation. As a result of negotiations with adjacent landowners, two alternatives for the outlet structure are proposed. In Alternative 1, the outlet structure will cross Morton Road directly across the street from the proposed

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Project into an existing channel. (Figure 2A, Alternative 1 Site Plan) In Alternative 2, the outfall structure will travel south along Morton Road for approximately 170 feet before depositing into an existing channel on the west side of Morton Road south of its intersection with Jennings Court (Figure 2B, Alternative 2 Site Plan). The headwall and concrete spillway will extend for approximately 40 feet. To aid in reducing downstream erosion, a rip rap apron will extend for an additional 40 feet.

2 Methods

2.1 Literature Review

For this biological resources letter report, “special-status” species are those that are (1) listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act; (2) listed or candidates for listing as threatened or endangered under the California Endangered Species Act; (3) a state fully protected species; (4) a California Department of Fish and Wildlife Species of Special Concern; (5) a species listed on the California Native Plant Society’s Inventory of Rare and Endangered Plants with a California Rare Plant Rank of 1B or 2B; or (6) an MSHCP species not adequately conserved and species for which the MSHCP has additional surveys requirements for the project site. Special-status vegetation communities are those identified as high priority for inventory in the Natural Communities List (CDFW 2018) by a state rarity ranking of S1, S2, or S3.

Special-status biological resources present or potentially present on the project site were identified through a literature search using the following sources: U.S. Fish and Wildlife Service’s Critical Habitat and Occurrence Data (USFWS 2019); California Department of Fish and Wildlife’s California Natural Diversity Database (CDFW 2019b); the California Native Plant Society’s online Inventory of Rare and Endangered Plants (CNPS 2019); and the Calflora database, which compiles observation and plant data from both private and public institutions, including the Consortium of California herbaria (Calflora 2019). Searches were completed for the following U.S. Geological Survey quadrangles (which include the quadrangle within which the study area is located and the eight surrounding quadrangles): Fontana, San Bernardino South, Redlands, Riverside West, Riverside East, Sunnymead, Lake Matthews, Steele Peak, and Perris.

Previous reports for the property were reviewed including Delineation of Jurisdictional Waters and Wetlands (Attachment B) and Planning Commission Staff Report (City of Moreno Valley 2007).

2.2 Field Reconnaissance

Dudek Biologists Anna Cassady and Britney Strittmater conducted a general biological survey of the project site including a 500-foot buffer, collectively referred to as the study area, on February 22, 2019, from 6:40 a.m. to 12:30 p.m. Private properties within the study area were surveyed visually with binoculars from the project site boundary. The survey was conducted when weather conditions were favorable, with no cloud cover, wind speeds from 3 to 10 miles per hour, and temperatures ranging from 40 °F to 53 °F. All native and naturalized plant species encountered within the study area were identified and recorded. The potential for special-status plant and wildlife species to occur within the study area was evaluated based on the vegetation communities, soils present, and surrounding features. Vegetation communities and land covers on site were mapped directly in the field onto a 200-foot-scale (1 foot = 200 feet) aerial photograph-based field map of the study area. A formal jurisdictional delineation was conducted on February 22, 2019. The methodology and results are provided under a separate cover; therefore,

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they are not further discussed within this report. Dudek Biologist Tracy Park conducted a biological survey of the study area associated with Alternative 2 on September 21, 2022, from 1:30 p.m. to 3:25 p.m.

Latin and common names for plant species with a California Rare Plant Rank follow the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2019). For plant species without a California Rare Plant Rank, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2019), and common names follow the U.S. Department of Agriculture's Natural Resources Conservation Service Plants Database (USDA 2019a). Natural vegetation communities were mapped in the field using the Vegetation Alliances of Western Riverside County (Klein and Evens 2006). Land cover types were described in accordance with Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). Latin and common names of animals follow Crother (2012) for reptiles and amphibians, the American Ornithologists' Union (AOU 2018) for birds, Wilson and Reeder (2005) for mammals, the North American Butterfly Association (NABA 2016) for butterflies, and Moyle (2002) for fish.

During the February 22, 2019, general biological survey of the site, two ponded features (i.e., ruts) were observed. Therefore, an additional site visit for these two features was conducted by Dudek biologist Anna Cassady on March 13, 2019. This visit was conducted to confirm if these features held water after 7 days.

Dudek used geographic information system software to map biological resources and provide figures.

2.3 Burrowing Owl Survey Methods

To meet requirements in the MSHCP, a habitat assessment (Step I) was conducted during the February 22, 2019, visit to identify suitable habitat for burrowing owl (*Athene cunicularia*) within the project site and a 500-foot buffer. This assessment was conducted in accordance with the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (RCA 2006). Due to private properties, the 500-foot buffer was visually inspected with binoculars.

Due to the presence of suitable habitat, from March through May 2019, Dudek biologist Anna Cassady conducted a focused burrow survey (Step II-A) and focused burrowing owl surveys (Step II-B) in accordance with the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (RCA 2006). Table 1 lists the dates and conditions of these surveys. The area surveyed on foot was limited to the project site boundary as entry was not granted for adjacent parcels. All buffer areas were surveyed visually.

The focused burrow survey consisted of pedestrian transects spaced approximately 30 meters (approximately 100 feet) apart to allow for 100% visual coverage of the project site. For a 500-foot buffer, only visual surveys were conducted as access to the privately owned parcels had not been granted. All burrows suitable for burrowing owl were mapped using GPS and then digitized using ArcGIS.

Dudek conducted a total of four focused burrowing owl surveys during the burrowing owl breeding season (March 1–August 31). The burrowing owl survey area was based on mapped suitable habitat and presence of suitable burrows. This area totaled 14.1 acres of the project site and 32.4 acres within the study area. The surveys were conducted when conditions were suitable for detecting owls (i.e., no rain, high winds [>20 mph], dense fog, or temperatures over 90° F).

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Table 1. Survey Information

Date	Sunrise	Hours	Survey Type	Conditions (temperature, cloud cover, wind)
3/26/19	6:45 a.m.	6:30 a.m.–8:50 a.m.	BUOW 1, Burrow Mapping	50°F–65°F, 0% - 20% cc, 0–1 mph winds
4/9/19	6:30 a.m.	6:15 a.m.–8:00 a.m.	BUOW 2	58°F–60°F, 0%-5% cc, 0-1 mph winds
4/23/19	6:05 a.m.	6:15 a.m.–7:35 a.m.	BUOW 3	50°F–53°F, 0% cc, 0–1 mph winds
5/13/19	5:49 a.m.	6:00 a.m.–7:00 a.m.	BUOW 4	58°F, 100% cc, 0–1 mph winds

Notes: °F = ° Fahrenheit; BUOW = burrowing owl; cc = cloud cover; mph = miles per hour

2.4 Survey Limitations

Access was not available within the 500-foot buffer within the southern portion due to private property. The 500-foot buffer within the north, east, and west was surveyed visually using binoculars. Therefore, vegetation mapping, habitat assessments, and the focused burrowing owl surveys were conducted from the project site or other public roads, in addition to being complimented with the use of aerial signatures of vegetation communities occurring within the proposed project footprint.

The reconnaissance survey was conducted during the late winter season, which resulted in detection and identification of most perennial plant species that may potentially occur in the area. Due to the timing of the surveys, annual and cryptic perennials may not have been detectable. Conditions were suitable for detection of most wildlife species (i.e., no cloud cover, 40°F–53°F temperatures, and moderate winds) and of winter migratory birds. However, timing of the survey limited the observations of neotropical breeding birds and colder temperatures may have limited the observations of reptiles.

Due to high rainfall over the winter, areas originally determined to be suitable for burrowing owl became marginal throughout the duration of the focused burrowing owl survey period. This was due to high grass and forb growth throughout the spring that led to dense cover that lowered the quality of the habitat for burrowing owl. These areas were still surveyed where accessible; however, areas with no visible ground were typically excluded.

3 Results

3.1 Site Description

The project site is characterized as open, vacant lands situated at the southwestern foothills of Box Springs Mountain. Based on aerial imagery (Google Earth 2019), the central and southern portions of the site have been frequently disced, as recently as October 2016. This is presumed to be for weed abatement and fire prevention. Elevations range from approximately 1,600 to 2,200 feet above mean sea level. The project site is surrounded by undeveloped land to the north, east, and west with residential developments to the south. Numerous erosional features with deep incised banks occur throughout the study area and are the result of sheet flow off Box Springs Mountain. Numerous dirt roads bisect the project site and contain deep, eroded segments. Morton Road bisects

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the southwestern portion of the study area. Representative photographs of the project site are included in Attachment B, Site Photographs.

Based on a review of historical topographic maps (Historic Aerials 2019), residences were built along a dirt access road in the northeastern portion of the project site sometime between 1942 and 1955. It is unclear when the residences were removed; however, the dirt road remains, along with eucalyptus trees, which are assumed to have been planted around the residences.

3.2 Soils

Five soil types are mapped within the study area: Cieneba Sandy Loam (15% to 50% slopes); Cieneba Rocky Sandy Loam (15% to 50% slopes); Fallbrook fine sandy loam, shallow (8% to 15% slopes); Monserate Sandy Loam (8% to 15% slopes); and Rockland (USDA 2019b). The spatial distribution of these soils is depicted in Figure 2, Soils.

- **Cieneba Series** consists of very shallow, somewhat excessively drained soils formed in material weathered from granitic rock. These soils typically occur on hills and mountains (USDA 2019b). This soil series occurs in the central and western portions of the study area in between the Rockland and Monserate Series.
- **Fallbrook Series** consists of deep, well-drained soils formed in material weathered from granitic rock. These soils typically occur on hills (USDA 2019b). This soil series occurs in the southern portion of the study area in between the Monserate and Rockland Series.
- **Monserate Series** consists of moderately well drained soils formed in alluvium from granitic rocks. These soils typically occur within alluvial fans and terraces (USDA 2019b). This soil series dominates the southern portion of the study area and is located south of the Cajon Series.
- **Rockland** consists of well-drained soils formed in loamy colluvium from landslides on slopes of stream valleys and ground moraines (USDA 2019b). This soil series dominates the northern and eastern portions of the study area.

3.3 Vegetation Communities and Land Covers

Three vegetation communities and two land cover types were documented within the study area: brittlebush scrub, California annual grassland, eucalyptus woodland, disturbed habitat, and urban/developed. Figure 3, Biological Resources, illustrates the distribution of vegetation communities and land covers, and Table 1 provides a summary of each vegetation community and land cover's extent within the study area.

Table 1. Vegetation Communities and Land Covers within the Study Area

Vegetation Community/Land Cover	Acreage
Vegetation Communities	
Brittlebush Alliance	67.9
California Annual Grassland Alliance	18.6
Eucalyptus Alliance	1.8
Non-Natural Land Covers	
Disturbed Habitat	6.0
Urban/Developed	16.4

Table 1. Vegetation Communities and Land Covers within the Study Area

Vegetation Community/Land Cover	Acreage
Total*	110.8

Note:

* Acreage may not total due to rounding.

3.3.1 Brittlebush Alliance

The brittlebush (*Encelia farinosa*) vegetation alliance is an open-to-intermittent shrub layer where brittlebush dominates or co-dominates at a low-to-moderate cover. The shrub layer often occurs in two separate strata: low shrubs at 0–2 meters tall and tall shrubs at 1–5 meters tall. A variety of native or non-native species may make up the herb layer (Klein and Evens 2006).

Within the study area, brittlebush is located in the northern portion of the study area at the base of Box Springs Mountain. This area contains numerous rocky outcrops. This community also occurs within the foothills in the central portion of the study area at slightly lower covers. This species was dominant in the shrub layer and included a lower cover of shrubs including California sagebrush (*Artemisia californica*) and black sage (*Salvia mellifera*). The herbaceous layer included various non-native grasses and a mixture of annual herbs such as redstem stork's bill (*Erodium cicutarium*) and shortfruit stork's bill (*Erodium brachycarpum*).

3.3.2 California Annual Grassland Alliance

As defined by Klein and Evens (2006), California annual grassland alliance is usually dominated by an open-to-continuous herbaceous layer of native or non-native species at 0–1 meters tall, where emergent shrubs occur infrequently at 0.5–5 meters tall. Herbaceous non-native grasses may include compact brome (*Bromus madritensis*), ripgut brome (*B. diandrus*), slender oat (*Avena barbata*), or common Mediterranean grass (*Schismus barbatus*), with other herbaceous species such as slender Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and redstem stork's bill.

California annual grassland occupies the central and southern portions of the study area. This vegetation community is comprised primarily of weedy species including, but not limited to, brome species (*Bromus* spp.), short-podded mustard (*Hirschfeldia incana*), Tournefort's mustard (*Brassica tournefortii*), common Mediterranean grass, common fiddleneck (*Amsinckia intermedia*), distant phacelia (*Phacelia distans*), shining pepperweed (*Lepidium nitidum*), Indian hedgemustard (*Sisymbrium orientale*), miniature lupine (*Lupinus bicolor*), winecup clarkia (*Clarkia purpurea*), California poppy (*Eschscholzia californica*), redstem stork's bill, and shortfruit stork's bill. Scattered emergent brittlebush is located along the northern portions of the community; however, due to the low cover in these areas, it did not warrant its own vegetation community.

3.3.3 Eucalyptus Alliance

The eucalyptus alliance is dominated by eucalyptus (*Eucalyptus* spp.) in the tree canopy, forming an open-to-interment tree layer at 10–15 meters tall. Typically, more than one eucalyptus species comprises this alliance. Other emergent trees may include coast live oak (*Quercus agrifolia*) or non-native trees and shrubs such as date palm (*Phoenix dactylifera*), peppertree (*Schinus* spp.), and tamarisk (*Tamarix* spp.) at lower covers.

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Within the study area, this alliance occurs within the northeastern portion of the study area and is dominated by various eucalyptus species. Scattered giant reed (*Arundo donax*), poison oak (*Toxicodendron diversilobum*), and laurel sumac (*Malosma laurina*) occur within the understory at low covers. A couple scattered California sycamores (*Platanus racemosa*) and a single Fremont cottonwood (*Populus fremontii*) were present but did not create a continuous canopy or high enough cover to warrant their own community. This area occurs at a topographic change in the slope of the Box Springs Mountain that appears to allow the water table to be close enough to the surface to support this vegetation; however, there was no evidence of wetland hydrology and, as described, plant species consisted of scattered individuals that did not create a continuous canopy.

3.3.4 Urban/Developed

Although not recognized by the Vegetation Alliances of Western Riverside County, urban/developed is defined by Oberbauer et al. (2008) as areas that have been constructed on or disturbed so severely that native vegetation is no longer supported. Urban/developed lands includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials.

Urban/developed land takes the form of rural residential development that is located within the 500-foot buffer to the south and paved roads including Morton Road, Jennings Court, and Penunuri Place, which all occur within the 500-foot buffer. A very small portion of Morton Road occurs within the proposed project site.

3.3.5 Disturbed Habitat

The classification of disturbed habitat is due to the predominance of bare ground, non-native plant species, and other disturbance-tolerant plant species. Oberbauer et al. (2008) describes disturbed habitat as areas that have been physically disturbed by previous human activity and are no longer recognizable as a native or naturalized vegetation association, but that continue to retain a soil substrate. Typically, vegetation, if present, is nearly exclusively composed of non-native annual plant species.

Within the study area, disturbed land encompasses the dirt access roads occurring within the western portion of the project site and within the western and southwestern portions of the 500-foot buffer. While the disturbed land within the study area was composed primarily of bare ground, plant species observed within this land cover include redstem stork's bill and common Mediterranean grass.

3.4 Floral Diversity

A total of 56 species of native or naturalized plants, 34 native (61%) and 22 non-native (39%), were recorded within the study area. This relatively low plant diversity reflects the study area's small size and the timing of the site visit, which was conducted in late winter, which would have precluded the detection of spring and summer blooming annuals. In addition, the study area was surveyed from public roads, which inherently constrains the ability to inventory all plant species. Plant species observed within the study area are listed in Attachment C, Vascular Plant Species.

3.5 Wildlife

A total of 32 bird species were detected within the study area, including western meadowlark (*Sturnella neglecta*), bushtit (*Psaltriparus minimus*), house finch (*Haemorhous mexicanus*), western kingbird (*Tyrannus verticalis*), red-tailed hawk (*Buteo jamaicensis*), Anna's hummingbird (*Calypte anna*), American crow wren (*Corvus*

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brachyrhynchos), coastal California gnatcatcher (*Poliophtila californica californica*), mourning dove (*Zenaida macroura*), Bewick's wren (*Thryomanes bewickii*), and California towhee (*Melospiza crissalis*). No active bird nests were observed within the study area during the reconnaissance survey or the focused burrowing owl surveys; however, the native scrub vegetation and eucalyptus within the study area surrounding the project site provides habitat for nesting birds and raptors. No amphibian species were observed and no amphibian species are expected to occur. Two reptile species was observed during the survey: common side-blotched lizard (*Uta stansburiana*) and granite spiny lizard (*Sceloporus orcutti*). Three mammal species were detected during the survey: mule deer (*Odocoileus hemionus*), California ground squirrel (*Spermophilus (Otospermophilus) beecheyi*), and desert cottontail (*Sylvilagus audubonii*). Wildlife species observed within the study area are listed in Attachment D, Wildlife Species.

3.6 Special-Status Plant Species

Attachment E, Special-Status Plant Species Detected or Potentially Occurring in the Study Area, lists special-status plant species that have been documented in the U.S. Geological Survey 7.5-minute Riverside East quadrangle and the eight surrounding quadrangles (CDFW 2019; CNPS 2019). For each species listed, a determination was made regarding the potential for the species to occur in the study area based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, and past and present land use. Listed species with a potential to occur and non-listed special-status species with a moderate or higher potential to occur are discussed herein.

No special-status plant species were detected within the study area. Two non-listed special-status species, Plummer's mariposa lily (*Calochortus plummerae*) and Parry's spineflower (*Chorizanthe parryi* var. *parryi*) have a moderate potential to occur within the study area; however, these species are fully covered species under the MSHCP (RCA 2017).

3.7 Special-Status Wildlife Species

Attachment F, Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area, lists special-status wildlife species that have been documented in the U.S. Geological Survey 7.5-minute Riverside East quadrangle and the eight surrounding quadrangles (CDFW 2019). For each species listed, a determination was made regarding potential use of the project site based on information gathered during the field reconnaissance, known habitat preferences, and knowledge of the species' relative distributions in the area. Listed species with a potential to occur and non-listed special-status species with a moderate or higher potential to occur are discussed herein.

The federally listed threatened coastal California gnatcatcher was incidentally observed foraging during the February 2019 site visit; however, this species is a fully covered species under the MSHCP. The federally listed endangered San Bernardino kangaroo rat (*Dipodomys merriami parvus*) has a low potential to occur in both the project site and study area; however, this species is fully covered under the MSCHP. The federally listed endangered and state-listed threatened Stephens' kangaroo rat (*Dipodomys stephensi*) has a moderate potential to occur in both the project site and the study area; however, this species is a fully covered species under the MSHCP. The project is also within the Stephens' Kangaroo Rat Habitat Conservation Plan, which provides take authorization for Stephens' kangaroo rat within its boundaries. The state fully protected white-tailed kite (*Elanus leucurus*) has a low potential to nest and moderate potential to forage within the study area; however, this species is fully covered under the MSCHP. Two non-listed species have a high potential to occur

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within the study area: red diamond rattlesnake (*Crotalus ruber*) and Blainville's horned lizard (*Phrynosoma blainvillii*). Three non-listed species have a moderate potential to occur within the study area: San Diego banded gecko (*Coleonyx variegatus abbotti*), burrowing owl, and loggerhead shrike (*Lanius ludovicianus*). All five of these species are covered by the MSHCP. The MSHCP has additional survey requirements for burrowing owl that are discussed in more detail below.

3.7.1 Burrowing Owl Habitat Assessment and Focused Survey Results

The proposed project is located within the MSHCP Burrowing Owl Habitat Assessment Area. In accordance with the MSHCP Burrowing Owl Survey Instructions (RCA 2006), a habitat assessment (step I of the survey instructions) was conducted for this species.

The burrowing owl is a California Species of Special Concern. With a relatively wide-ranging distribution throughout the west, burrowing owl is considered a habitat generalist (Lantz et al. 2004). In California, burrowing owl is a yearlong resident of open, dry grassland and desert habitats, and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats (Zeiner et al. 1990). Preferred habitat is generally typified by short, sparse vegetation with few shrubs; level to gently sloping topography; and well-drained soils (Haug et al. 1993).

The presence of burrows is the most essential component of burrowing owl habitat, as they are required for nesting, roosting, cover, and caching prey. In California, western burrowing owl most commonly lives in burrows created by California ground squirrels. Burrowing owl may occur in human-altered landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse), useable burrows are available, and foraging habitat is close (Gervais et al. 2008). Debris piles, riprap, culverts, and pipes can also be used for nesting and roosting.

The nearest documented occurrence of burrowing owl is approximately 3.5 miles south of the study area. This occurrence was documented in 2009 (CDFW 2019).

The project site is vacant, consisting of open habitat comprised of California annual grassland, brittlebush, and disturbed habitat. The brittlebush alliance within the northern portion of the site is not suitable for burrowing owl due to the steep topography and dense shrub cover. The California annual grassland provides open habitat with moderate- to high-quality potential foraging habitat for burrowing owl. In addition, California ground squirrels are present within the project site and may provide suitable burrows (i.e., greater than 4 inches in diameter) for burrowing owl. In addition, rocky outcrops and large erosional features do occur within portions of the study area within the brittlebush alliance. These rocky outcrops and erosional features contain interstitial space marginally suitable for the nesting of burrowing owl, and adjacent grasslands are present for potential foraging. Therefore, burrowing owl has a moderate potential to occur within the study area due to suitable habitat present.

As described in Section 2.3 of this document, focused burrowing owl surveys were conducted between March and May 2019. No burrowing owls or signs of burrowing owls (e.g., feathers, whitewash, pellets) were observed within the project site. The result of the focused burrow survey is depicted on Figure 4, Burrowing Owl Focused Survey Results.

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3.8 Nesting Birds

The project site provides potential nesting habitat for commonly occurring birds such as Anna's hummingbird or house finch. The project site did contain large trees (e.g., eucalyptus) suitable for raptor nesting. One nest was observed within the eucalyptus alliance stand; however, this nest appeared to be old and was not active. No additional nests were observed within the study area during the survey; however, the site visit was conducted just outside of the known nesting season of many species.

3.9 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal. The study area and the surrounding environment to the north, east, and west contain open scrub habitat associated with Box Springs Mountain that likely functions as open habitat, but does not function as a corridor for wildlife. Additionally, the area is not identified as a wildlife movement corridor by the MSHCP.

4 Western Riverside County MSHCP Consistency Analysis

The project site is located in the MSHCP Reche Canyon/Badlands Area Plan and must comply with relevant sections of the MSHCP. The project site is not within an MSHCP Criteria Cell (Figure 5, Western Riverside MSHCP Plan Area); therefore, no Reserve Assembly requirements would apply to the project site. The project site is not located within MSHCP Section 6.1.3 Narrow Endemic Species Survey Area or MSHCP Section 6.3.2 Additional Survey Needs and Procedures for Criteria Area Plant Species, Mammals, or Amphibians; therefore, additional survey requirements for these would not apply to the project site and are not further discussed. The project's compliance with the relevant sections of the MSHCP is discussed below.

4.1 MSHCP Section 6.1.2 Riparian/Riverine Resources

The MSHCP defines riparian/riverine areas as "lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year." The MSHCP further clarifies those areas "demonstrating characteristics as described above which are artificially created are not included in these definitions" (County of Riverside 2003).

The study area contains two ephemeral drainages (Drainage 1 and Drainage 2) and two associated tributaries (Tributary 1 and Tributary 2) (Figure 6, Western Riverside MSHCP Biological Resources). These features convey water ultimately connecting to Box Springs Canyon Wash, which has surface connection ultimately flowing to the Santa Ana River. Because these features convey water to downstream resources, they would be considered riverine resources as defined by the MSHCP. There are approximately 0.29 acres of MSHCP riverine resources within the study area.

The study area contains two additional upland swales and five erosional features. These features originate from natural topography of Box Springs Mountain; runoff conveyed by these features ultimately sheetflows and

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dissipates. These features do not rely on a fresh water source and do not convey flows to downstream riverine resources; therefore, these are not a riverine resource as defined by the MSHCP.

The project site supports a few scattered individuals of California sycamore, Fremont cottonwood, and mulefat (*Baccharis salicifolia*) as observed during the February 2019 field visit. This riparian vegetation is small in its extent, lacks understory or closed-canopy features, lacks continuity with higher quality habitat, and is not contiguous; therefore, it is not sufficient to support riparian bird species such as least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), or yellow-billed cuckoo (*Coccyzus americanus*). These scattered individuals are not considered a riparian resource as defined by the MSHCP.

4.1.1 Vernal Pools and Fairy Shrimp Habitat

The MSHCP defines vernal pools as the following (County of Riverside 2003):

[S]easonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. The determination that an area exhibits vernal pool characteristics, and the definition of the watershed supporting vernal pool hydrology, must be made on a case-by-case basis. Such determinations should consider the length of the time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, and drainage characteristics, uses to which it has been subjected, and weather and hydrologic records.

Fairy shrimp habitat also includes ephemeral pools and other features such as road ruts or stock ponds.

No vernal pool-indicator plant species were identified within the area and no vernal pools were observed within the study area. Soils mapped in the region are Cieneba Sandy Loam, Cieneba Rocky Sandy Loam, Monserate Sandy Loam, Fallbrook sandy loam, and Rockland. These series are all considered well to moderately well draining and therefore are not known to retain ponded water. However, two topographic low points contained standing water and ponding as observed during the February 22, 2019, site visit. Moreno Valley received approximately 3.79 inches of rain in the month of February 2019 due to larger storm events resulting in 1.39 inches of rain recorded on February 14 and 1.10 inches of rain recorded on February 15, and smaller events resulting in 0.21 inches of rain recorded on February 21 and 0.08 inches of rain recorded on February 22, 2019 (NRCS 2019). An ephemeral pond needs to hold water for at least 7 days for it to be suitable for fairy shrimp (USFWS 2015). Due to the rain events occurring less than 7 days prior to the February 22, 2019, field visit it was determined a subsequent visit should be conducted to determine if the ponds held water for at least 7 days. Approximately 0.10 inches of rain was recorded on March 6, 0.43 inches of rain was recorded on March 7, and 0.13 inches of rain was recorded on March 8, 2019 (NRCS 2019). Furthermore, the National Oceanic and Atmospheric Administration recorded 0.14 inches of rain between March 11 and 13, 2019 (NOAA 2019). The onset of significant rain events (i.e., 0.10 inches or more) beginning March 6, 2019, was adequate in order to determine if these feature held water as a result of this initial rain event and subsequent rain events after. Therefore, an additional site visit was conducted on March

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13, 2019, to confirm if the two ponded areas observed on February 22, 2019, had held water for 7 days. The two topographic low points did not contain standing water or ponding during the March 13, 2019, site visit. Therefore, based on the facts that these features did not hold water for 7 days and that the soils present are considered well to moderately well draining and not known to retain ponded water, the study area was determined to not support habitat for Riverside fairy shrimp (*Streptocephalus woottoni*).

4.2 MSHCP Section 6.3.2 Additional Survey Area Needs and Procedures

Section 6.3.2 of the MSHCP establishes habitat assessment requirements for certain species of plants, birds, mammals, and amphibians. The project site is located in a required habitat assessment area for burrowing owl. As discussed above under Section 3.7, Special-Status Wildlife Species, of this report, the habitat assessment did identify potential burrowing owl habitat, including open areas that provide line of sight and suitable burrowing owl burrows. As such, Step II (focused surveys, census, and mapping) was conducted with negative results; however, pre-construction surveys will be required.

4.3 MSHCP Section 6.1.4 Urban/Wildlife Interface Guidelines

According to the MSHCP, the Urban/Wildlands Interface Guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Area (County of Riverside 2003, pp. 6–42). The project site is not within any conserved areas; however, the Henry Conservation Easement is north of the site within Criteria Cell 637 (Figure 5). Furthermore, ephemeral drainages within the study area flow to Box Springs Canyon Wash, which ultimately flows to the Santa Ana River based on surface connectivity. Due to the proposed project being located adjacent to proposed conservation and having connectivity to areas described for conservation, the Urban/Wildlife Interface Guidelines are applicable.

5 Impacts Analysis and Recommendations

This section addresses potential impacts to special-status biological resources that could result from implementation of the proposed project. This section follows the CEQA checklist for biological resources as identified below. For the impacts analysis, the two alternatives of the project site plans were overlaid with biological resources (Figure 7, Project Impacts). Table 2 summarizes the total area of impact used in the impact analysis.

Significance Thresholds

The following are the significance thresholds for biological resources provided in the CEQA Appendix G Environmental Checklist, which states that project activities could potentially have a significant affect if they:

1. **Impact-BIO-1:** Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS (Threshold Bio-1).
2. **Impact-BIO-2:** Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (Threshold Bio-2).

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3. **Impact-BIO-3:** Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (Threshold Bio-3).
4. **Impact-BIO-4:** Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites (Threshold Bio-4).
5. **Impact-BIO-5:** Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Threshold Bio-5).
6. **Impact-BIO-6:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan (Threshold Bio-6).

Table 2. Impacts to Vegetation Communities and Land Covers within the Project Site

Vegetation Community/Land Cover	Alternative 1 Impact Acreage	Alternative 2 Impact Acreage
Vegetation Communities		
Brittlebush Alliance	3.56	3.56
California Annual Grassland Alliance	7.65	7.65
Eucalyptus Alliance	0.19	0.19
Non-Natural Land Covers		
Disturbed Habitat	2.84	2.85
Urban/Developed	0.02	0.04
Total*	14.26	14.30

* Acreage may not total due to rounding.

5.1 Impact-Bio-1: Special-Status Species

5.1.1 Special-Status Plants

No special-status plant species were detected within the study area; however, two non-listed special-status plant species have a moderate potential to occur within the project site: Plummer’s mariposa lily and Parry’s spineflower. Plummer’s mariposa lily and Parry’s spineflower are fully covered under the MSCHP; therefore, compliance with the MSHCP offsets potential direct and indirect impacts to these species.

5.1.2 Special-Status Wildlife

One federally listed threatened species (coastal California gnatcatcher) was detected within the project site; however, this species is a fully covered species under the MSHCP. Therefore, compliance with the MSHCP offsets potential direct and indirect impact to this species.

One federally listed endangered wildlife species (San Bernardino kangaroo rat) has a low potential to occur within the study area and one federally listed endangered and state-listed threatened wildlife species (Stephen’s kangaroo rat) has a moderate potential to occur within the study area. San Bernardino kangaroo and Stephen’s kangaroo rat are fully covered under the MSCHP; therefore, compliance with the MSHCP offsets potential direct and indirect

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

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impacts to these species. Furthermore, the project is also within the Stephen’s Kangaroo Rate Habitat Conservation Plan, which provides take authorization for Stephen’s kangaroo rat within its boundaries.

One state fully protected wildlife species (white-tailed kite) has a low potential to nest and moderate potential to forage within the study area. This species is fully covered under the MSHCP; therefore, compliance with the MSHCP offsets potential indirect impacts to this species. There is no take authorization of fully protected species; therefore, impacts to nesting white-tailed kite would be significant. Nests would be avoided as described in Section 5.4.1. With implementation of MM-BIO-2 (Nesting Birds), no significant impacts to nesting white-tailed kite would occur.

In addition, two non-listed special-status species (San Diego banded gecko and loggerheaded shrike) have moderate potential to occur within the study area. Two other non-listed special-status species (red diamond rattlesnake and Blainville’s horned lizard) have a high potential to occur within the study area. All of these species are fully covered under the MSHCP; therefore, compliance with the MSHCP offsets potential direct and indirect impacts to this species.

5.1.2.1 Burrowing Owl

The focused burrowing owl surveys concluded that burrowing owls were absent from the project site; however, burrowing owl could move into the project site prior to initiation of construction activities. Direct impacts to burrowing owl would be significant if they occupy the site (Impact-BIO-1). Additionally, if burrowing owl occupy surrounding habitat within 500 feet of construction activities, indirect impacts could be significant. To avoid potential for significant impacts to burrowing owl during construction activities and to remain consistent with the MSHCP, a pre-construction burrowing owl survey should be conducted and avoidance measures implemented if burrowing owl are present (MM-BIO-1, Burrowing Owl Pre-Construction Surveys).

5.2 Impact-Bio-2: Riparian and Special Status Vegetation Communities

There are no special-status vegetation communities as defined by the California Department of Fish and Wildlife within the project site; therefore, the project would not result in direct or indirect impacts to special-status vegetation communities (Impact-Bio-2). The project would result in impacts to riverine resources as defined by the MSHCP and as summarized in Table 3. Impacts to riverine resources are further discussed in Section 4.1, MSHCP Section 6.1.2 Riparian/Riverine Resources, of this report.

Table 3. Permanent Impacts to MSHCP Riverine Resources within the Project Site

Feature	Vegetation Community and/or Land Cover	Alternative 1 MSHCP Riverine Resources (Acres/Linear Feet) *	Alternative 2 MSHCP Riverine Resources (Acres/Linear Feet) *
Drainage 1	Brittlebush (<i>Encelia farinosa</i>) Alliance	—	—
	California Annual Grassland Alliance	0.01/38	0.01/76
	Eucalyptus (<i>Eucalyptus</i> spp.) Alliance	—	<0.01/24

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Table 3. Permanent Impacts to MSHCP Riverine Resources within the Project Site

Feature	Vegetation Community and/or Land Cover	Alternative 1 MSHCP Riverine Resources (Acres/Linear Feet) *	Alternative 2 MSHCP Riverine Resources (Acres/Linear Feet) *
	Disturbed Habitat	–	–
	Urban/Developed	–	–
<i>Drainage 1 MSHCP Riverine Total</i>		<i>0.01/38</i>	<i>0.01/100</i>
Tributary 1	Brittlebush Alliance	0.02/307	0.02/307
	California Annual Grassland Alliance	0.01/284	0.01/284
	Eucalyptus Alliance	<0.01/82	<0.01/82
<i>Tributary 1 MSHCP Riverine Total</i>		<i>0.03/674</i>	<i>0.03/674</i>
Drainage 2	Brittlebush Alliance	–	–
	Disturbed Habitat	–	–
<i>Drainage 2 MSHCP Riverine Total</i>		<i>–</i>	<i>–</i>
Tributary 2	Brittlebush Alliance	–	–
<i>Tributary 2 MSHCP Riverine Total</i>		<i>–</i>	<i>–</i>
Grand Total*		0.04/712	0.05/774

Notes: MSHCP = Multiple Species Habitat Conservation Plan

* Acreage may not total due to rounding.

5.3 Impact-Bio-3: Jurisdictional Waters

Impacts to jurisdictional waters are discussed under separate cover (Dudek 2022).

5.4 Impact-BIO-4: Migratory Birds and Wildlife Corridor/ Nursery Sites

5.4.1 Nesting Birds

Project construction could result in direct and indirect impacts to nesting birds, including the loss of nests, eggs, and fledglings (Impact-BIO-4) if ground-disturbing activities occur during the nesting season (generally February 15 through August 31). Construction activities during this time may result in reduced reproductive success and may violate the federal Migratory Bird Treaty Act and California Fish and Game Code. If construction (including any ground-disturbing activities) occurs during the nesting season, a nesting bird survey must be conducted by a qualified biologist prior to grading activities. If nesting birds are observed within or adjacent to the construction activities, avoidance of active bird nests should occur as determined by the qualified biologist to ensure compliance with these regulations. With implementation of MM-BIO-2 (Nesting Birds), no significant impacts to nesting birds would occur.

5.4.2 Wildlife Corridors and Nursery Sites

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

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The project site currently does not function as a wildlife corridor and does not support any wildlife nursery sites. As a result, implementation of the proposed project would not result in impacts to these resources (Impact-Bio-4).

5.5 Impact-Bio-5: Other Local Ordinances

There are no applicable local ordinances related to biological resources; therefore, the project would be consistent with local ordinances.

5.6 Impact-Bio-6: Habitat Conservation Plans

The project site overlaps both the MSHCP and the Stephens' Kangaroo Rat Habitat Conservation Plan and must be consistent with each of these plans for compliance with Impact-Bio-6.

5.6.1 Western Riverside Multiple Species Habitat Conservation Plan

The project site is within the MSHCP Plan Area and must comply with applicable sections of the MSHCP as well as pay the applicable MSHCP Development Mitigation Fee.

5.6.1.1 MSHCP Section 6.1.2 Riparian/Riverine Resources

As described in Section 4.1 of this letter report, the project site supports riverine resources as defined by the MSHCP. The proposed project would result in the permanent loss of approximately 0.04 acres (Alternative 1) or 0.05 acres (Alternative 2) of MSHCP riverine resources. To remain consistent with the MSHCP, the project must prepare a Determination of Biologically Equivalent or Superior Preservation identifying avoidance, minimization, and mitigation measures for impacts to riverine resources. With implementation of MM-BIO-3 (Determination of Biologically Equivalent or Superior Preservation), the project is consistent with Section 6.1.2 of the MSHCP.

5.6.1.2 MSHCP Section 6.1.4 Urban/Wildlife Interface Guidelines

The project is located adjacent to a proposed conservation area and has connectivity to areas described for conservation; therefore, the Urban/Wildlife Interface Guidelines are applicable. Each of the Urban/Wildlife Interface Guidelines are further discussed below.

- **Drainage/Toxics:** The proposed project includes the construction of a debris basin and water quality basin. Furthermore, the project will include the development of a stormwater pollution prevention plan. With implementation of these measures, the project would be consistent with these requirements of the MSHCP and no further actions are required.
- **Lighting/Noise:** The project is located immediately north of existing residential development and adjacent to Morton Road. The project will incorporate a setback consisting of open space within the northern portion of the project site. Therefore, night lighting and noise will not impact existing or future MSHCP Conservation Areas and the project would be consistent with these requirements of the MSHCP.
- **Barriers:** The project does not include fencing or other barriers that would impede wildlife. Furthermore, the project site does not function as a corridor for wildlife. Additionally, the area is not identified as a wildlife movement corridor by the MSHCP; therefore, the project would be consistent with these requirements of the MSHCP.

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- Grading/Land Development: No manufactured slopes extend within existing or planned Conservation Areas; therefore, the project would be consistent with these requirements of the MSHCP.
- Invasives: Invasive species provided in MSHCP Table 6-2 are not to be used in development or restoration plan activities for projects adjacent to conservation areas. As described in MM-BIO-4, the project shall not use invasive species as defined in the MSHCP Table 6-2 within its landscape plan. With implementation of this measure, the project would be consistent with this requirement of the MSHCP.
- Fuel Modification: Weed abatement and fuel modification zones do not encroach into existing or planned Conservation Areas; therefore, the project would be consistent with these requirements of the MSHCP.

With the project design features and mitigation measures, including the development of a debris basin and water quality basin, development of a stormwater pollution prevention plan, and implementation of MM-BIO-4, the project is consistent with Section 6.1.4 of the MSHCP.

5.6.1.3 MSHCP Section 6.3.2 Additional Survey Needs and Procedures

The project does support burrowing owl habitat and burrowing owl have the potential to occupy the site in the future. With implementation of MM-BIO-1, which includes burrowing owl pre-construction surveys, and avoidance and minimization measures if applicable, the project would be consistent with the MSHCP burrowing owl requirements.

5.6.2 Stephens' Kangaroo Rat Habitat Conservation Plan

The project site is within the Stephens' Kangaroo Rat Habitat Conservation Plan boundary. With payment of the Stephens' Kangaroo Rat Habitat Conservation Plan Development Mitigation Fee, the proposed project would be consistent with the Stephens' Kangaroo Rat Habitat Conservation Plan.

6 Avoidance, Minimization, and Mitigation Measures

MM-BIO-1 Burrowing Owl Pre-Construction Surveys

A pre-construction survey shall be conducted for burrowing owl in accordance with the Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area (RCA 2006). In accordance with these instructions, this survey would occur within 30 days prior to ground-disturbance activities. A minimum of one survey site visit within the described time frame prior to disturbance is required to confirm presence or absence of owls on the site. Pre-construction surveys shall be conducted by a qualified biologist. If burrowing owl are present within the survey area, take of active nests shall be avoided as determined by a qualified biologist.

MM-BIO-2 Nesting Birds.

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To maintain compliance with the Migratory Bird Treaty Act and California Fish and Game Code, if ground-disturbing and/or vegetation clearance activities are scheduled to occur during the avian nesting season (typically February 15 through August 31), a pre-construction nesting bird survey shall be conducted by a qualified biologist within the project site and a 500-foot buffer around the project site. Surveys shall be conducted within 3 days prior to initiation of activity and shall be conducted between dawn and noon.

If an active nest is detected during the nesting bird survey, avoidance buffers shall be implemented as determined by a qualified biologist. The buffer shall be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests shall be monitored as determined by the qualified biologist until nestlings have fledged and dispersed or it is confirmed that the nest has been unsuccessful or abandoned.

MM-BIO-3 Determination of Biologically Equivalent or Superior Preservation

Prior to initiating construction activities, the applicant shall prepare and have reviewed by the wildlife agencies a Determination of Biologically Equivalent or Superior Preservation (DBESP) for impacts to riverine habitat in compliance with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Section 6.1.2, Protection of Species Associated with Riparian/Riverine areas and Vernal Pools. The DBESP will ensure replacement of any lost functions and values of riparian/riverine habitat as it relates to riverine resources, and will include the following:

- Definition of the project area;
- A written project description, demonstrating why an avoidance alternative is not possible;
- A written description of biological information available for the project site, including the results of resource mapping;
- Quantification of unavoidable impacts to riparian/riverine areas, including direct and indirect effects;
- A written description of project design features and mitigation measures that reduce indirect effects, such as edge treatments, landscaping, elevation difference, minimization, and/or compensation through restoration or enhancement; and
- A finding demonstrating that, although the proposed project would not avoid impacts, with proposed design and compensation measures the project would be biologically equivalent or superior to that which would occur under an avoidance alternative without these measures, based on effects on conserved habitats, effects on least Bell's vireo (*Vireo bellii pusillus*), and/or effects on riparian linkages and function of the MSHCP Conservation Area.

MM-BIO-4 General Avoidance and Minimization Measures

The following avoidance and minimization measures shall be implemented during proposed project construction activities:

- Construction limits along the northern boundary of the proposed project shall be clearly flagged so that adjacent native vegetation is avoided.

TO: SHIZAO ZHENG
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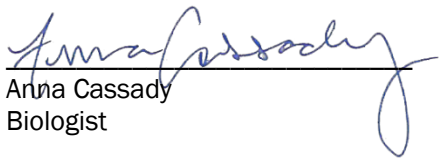
- Staging and storage areas for spoils, equipment, materials, fuels, lubricants, and solvents shall be located within the designated impact area or adjacent developed areas.
- Invasive species identified in Table 6-2 of the Western Riverside County Multiple Species Habitat Conservation Plan shall not be used in development landscape plans or restoration plan activities.

7 Conclusions

The proposed has the potential to impact three special-status biological resources: burrowing owl, Parry's spineflower, and riverine habitat. With implementation of the avoidance, minimization, and mitigation measures described in this report, the project would be consistent with the MSHCP and would result in less than significant impacts to biological resources under CEQA.

If you have any questions regarding this biological resources letter report, please feel free to contact me at acassady@dudek.com or at 951.300.1088.

Sincerely,



Anna Cassady
 Biologist

Att.: Attachment A – Figures
 Attachment B – Site Photographs
 Attachment C – Vascular Plant Species
 Attachment D – Wildlife Species
 Attachment E – Special-Status Plant Species Detected or Potentially Occurring in the Study Area
 Attachment F – Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

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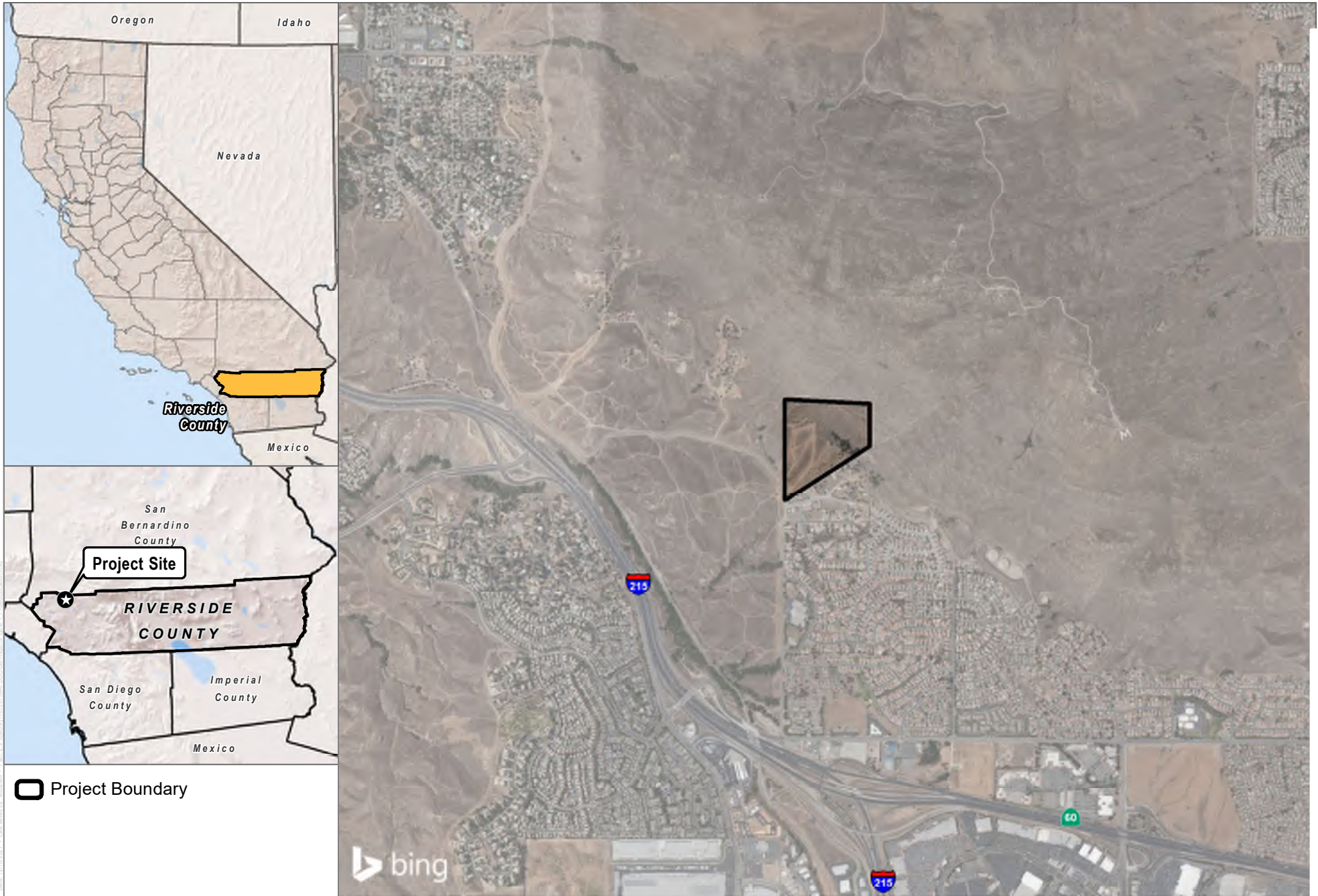
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Attachment A

Figures

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



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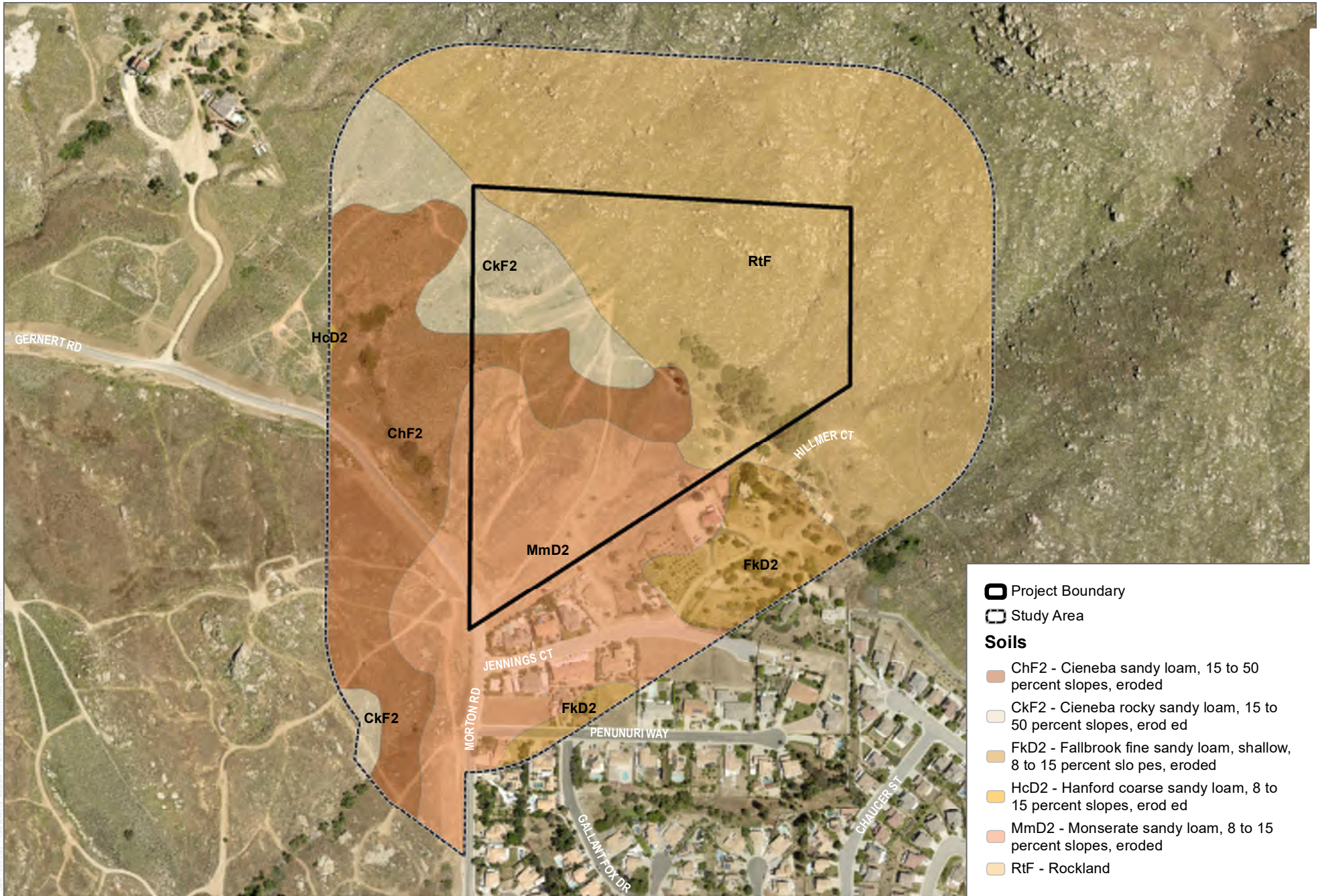
SOURCE: Bing Maps 2021



FIGURE 1

Project Location


Biological Resources Letter Report and MSHCP Consistency for Tentative Tract 37557, City of

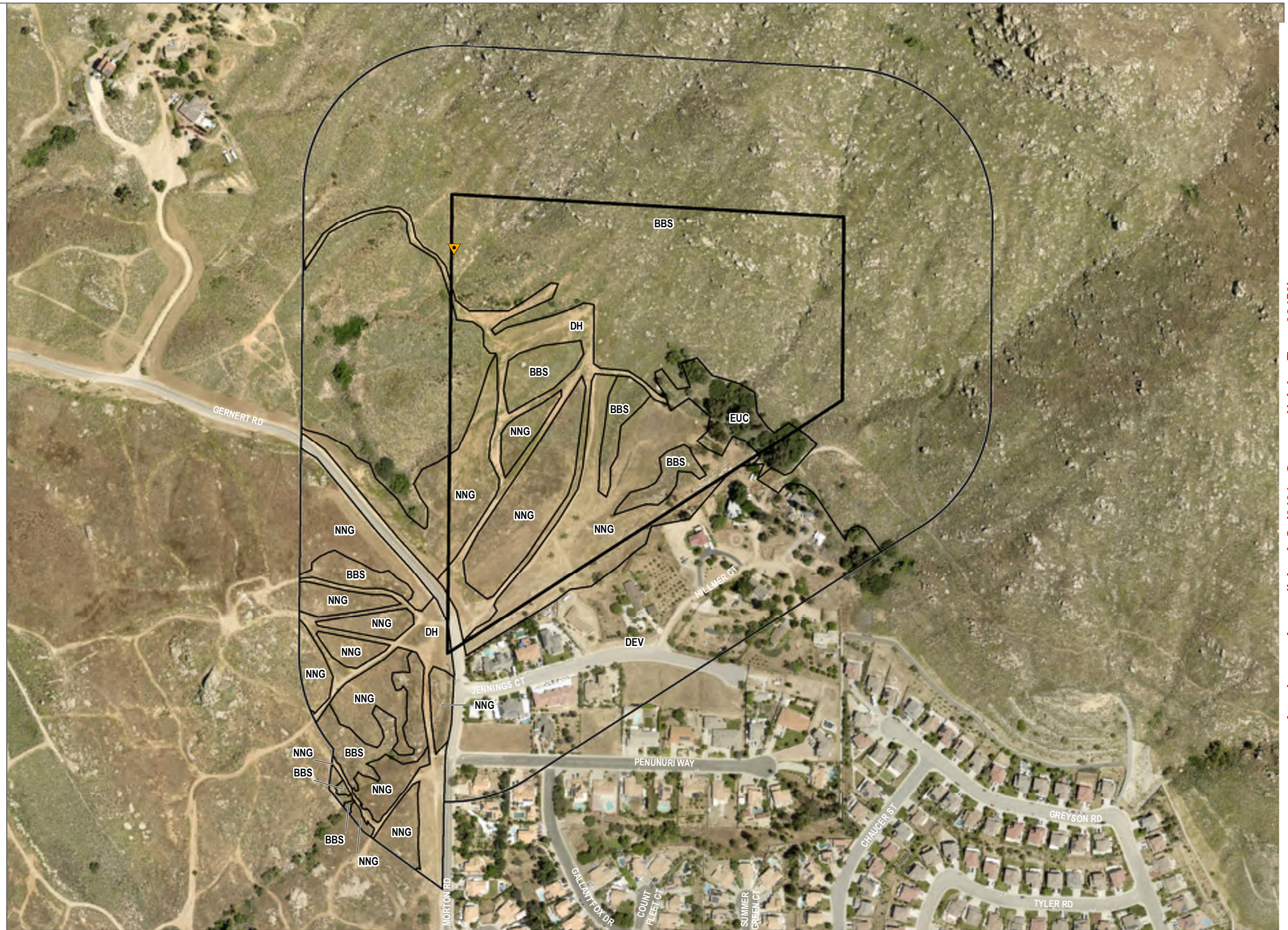


SOURCE: USDA NRCS 2021; Riverside Aerial 2020



FIGURE :
Soils

-  Project Boundary
-  Study Area
-  Vegetation Communities and Land Cover Types
 - BBS - Brittlebush Alliance
 - EUC - Eucalyptus Alliance
 - NNG - California Annual Grassland Alliance
 - DEV - Urban/Developed
 - DH - Disturbed Habitat
- Special-Status Wildlife Observations**
 -  Coastal California gnatcatcher











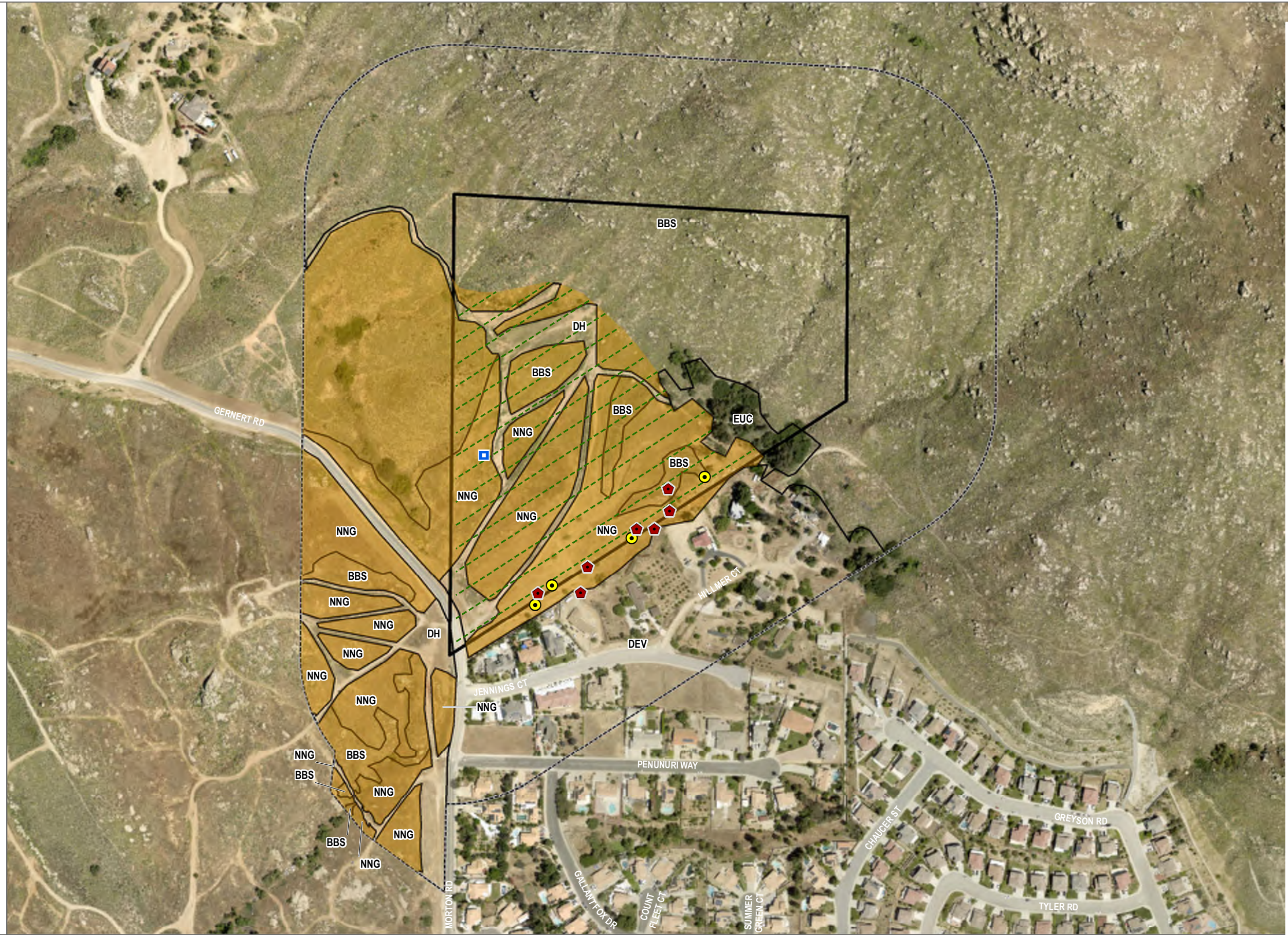
SOURCE: Riverside Aerial 2020



FIGURE :
Biological Resources

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

-  Project Boundary
-  Study Area
-  Burrowing Owl Suitable Habitat
-  Vegetation Communities and Land Cover Types
- BBS - Brittlebush Alliance
- EUC - Eucalyptus Alliance
- NNG - California Annual Grassland Alliance
- DEV - Urban/Developed
- DH - Disturbed Habitat
-  Survey Transects
- Survey Results**
-  Burrow
-  Erosional Feature
-  Rock Outcrop



SOURCE: Riverside Aerial 2020

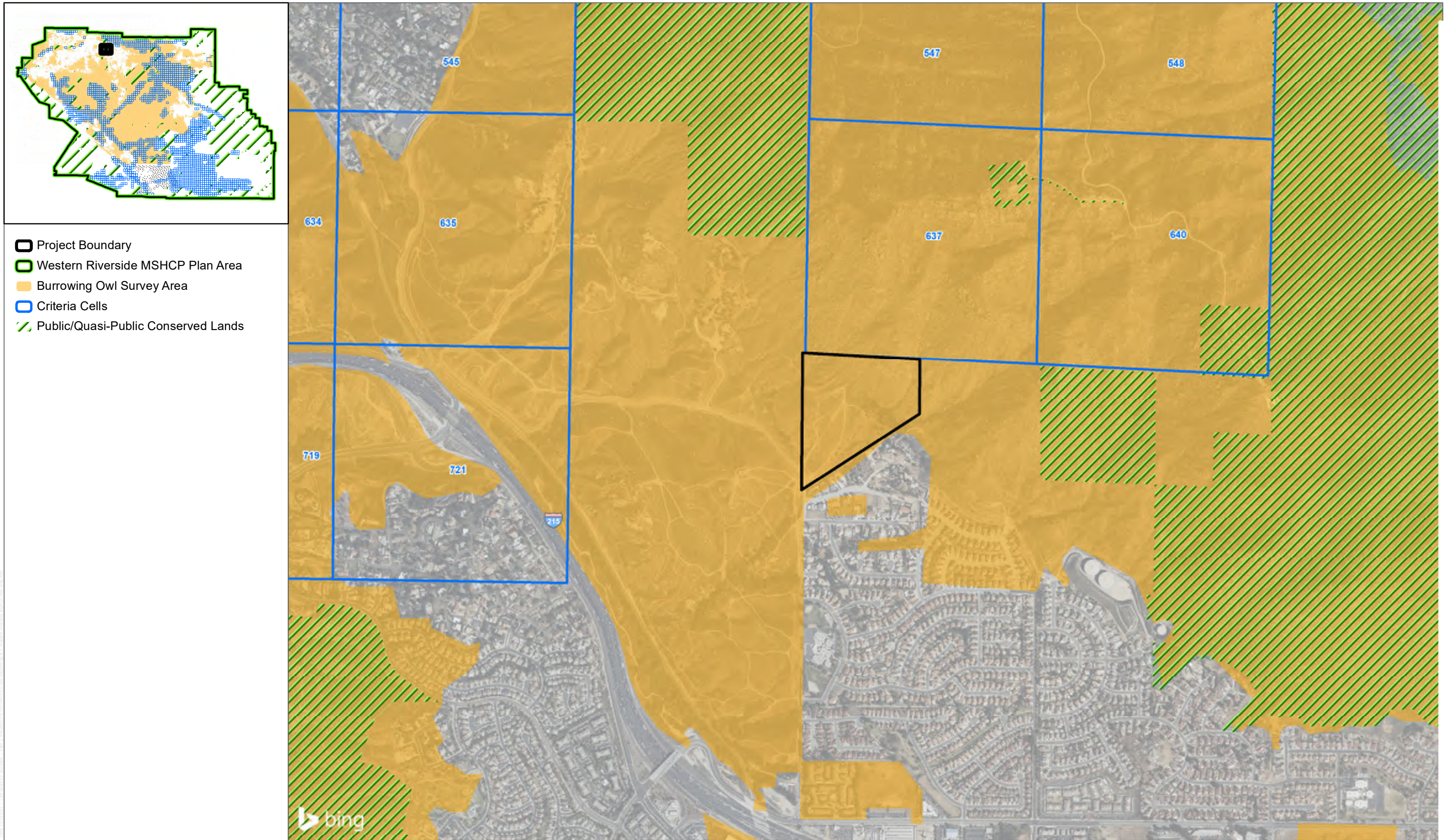


FIGURE 4

Burrowing Owl Focused Survey Results

Biological Resources Letter Report and MSHCP Consistency for Tentative Tract 37557, City of...

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



SOURCE: Bing Maps 2021







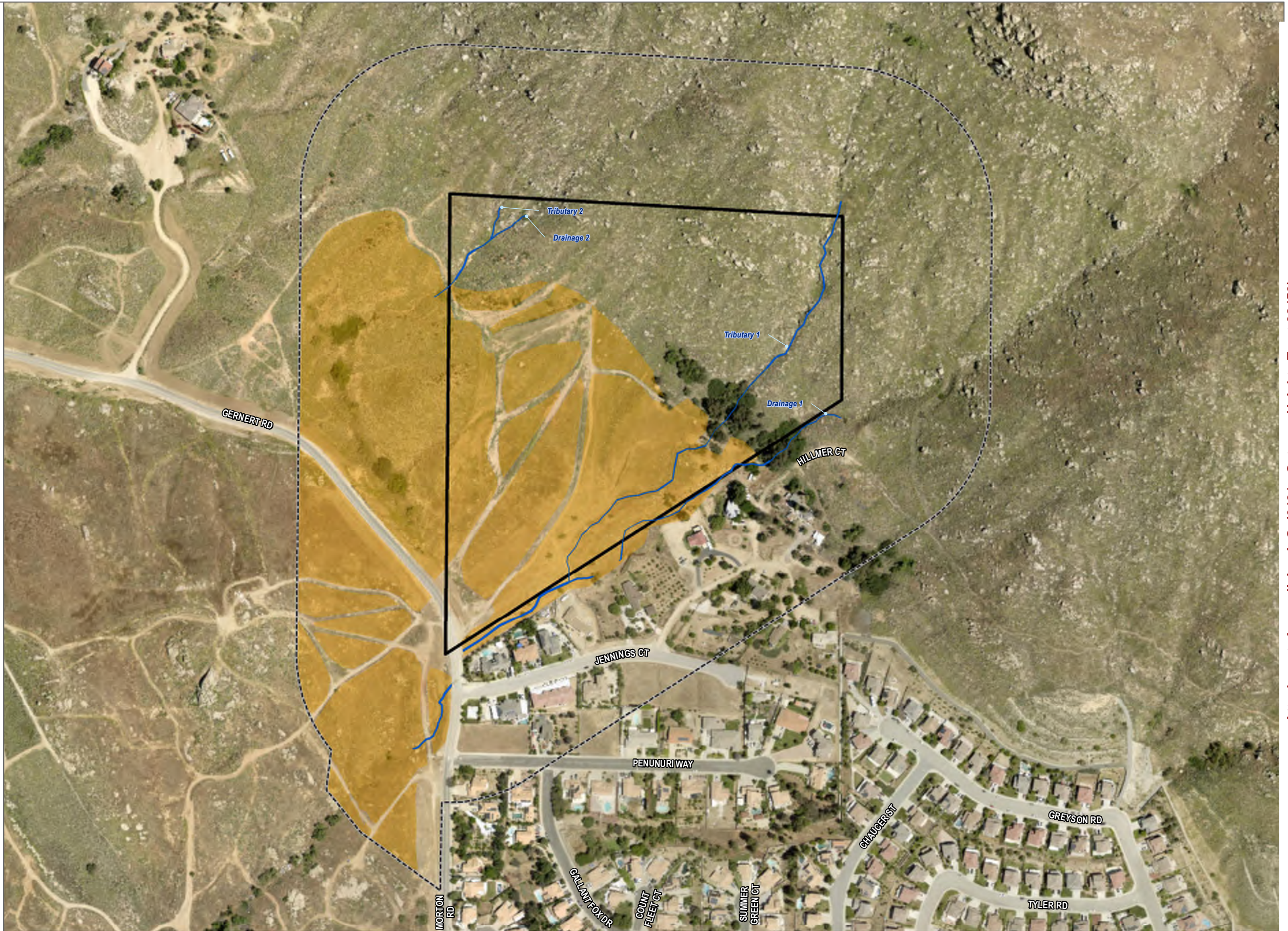
Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

FIGURE 1

Western Riverside MSHCP Plan Area

Biological Resources Letter Report and MSHCP Consistency for Tentative Tract 37557, City of Riverside, California

-  Project Boundary
-  Study Area (500-Foot Buffer)
-  MSHCP Riverine Resources
-  Burrowing Owl Suitable Habitat



SOURCE: Bing Maps 2021










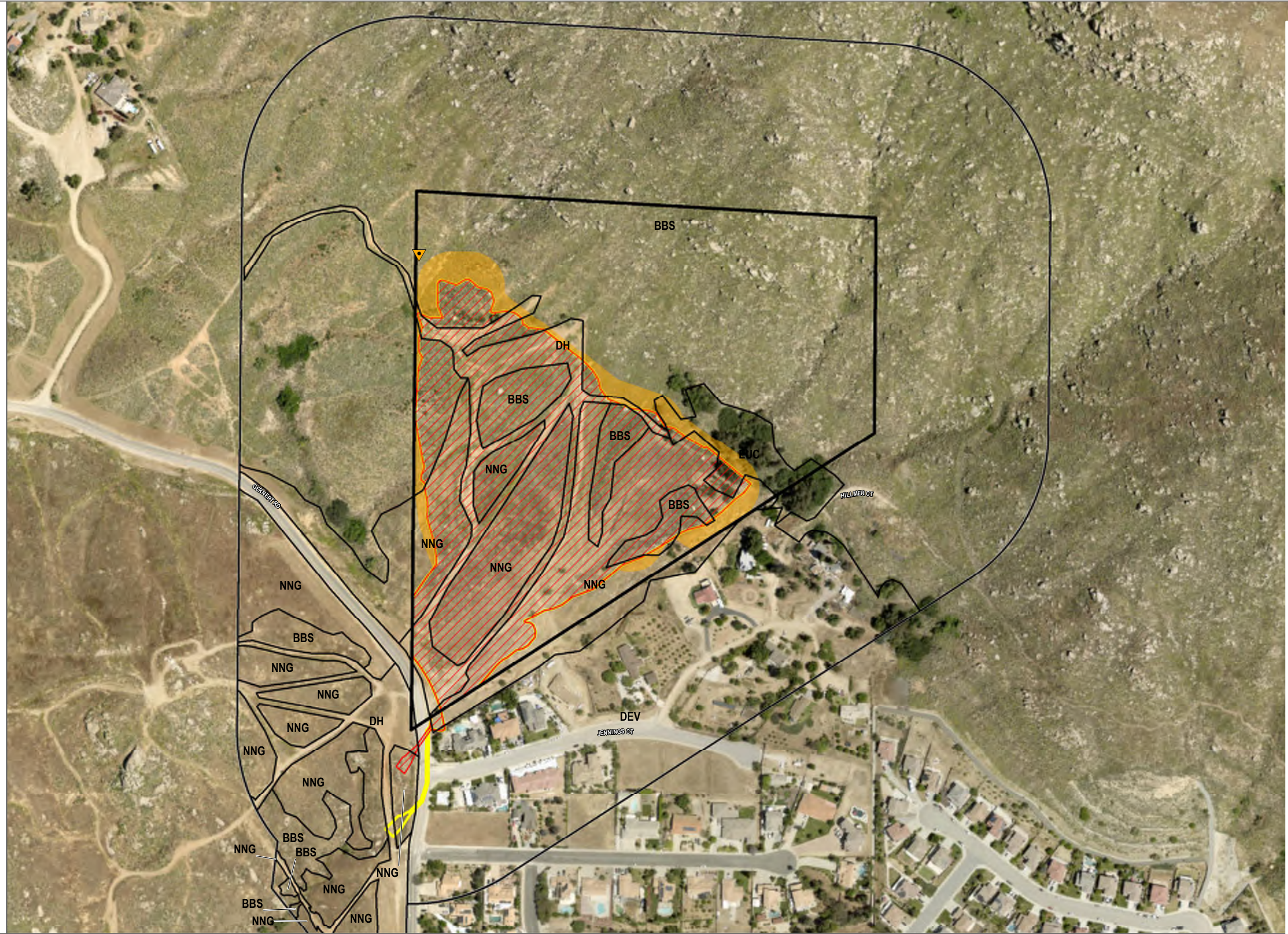
Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

FIGURE 1

Western Riverside MSHCP Biological Resources

Biological Resources Letter Report and MSHCP Consistency for Tentative Tract 37557, City of...

-  Project Boundary
-  Biological Study Area (500-Foot)
-  Alternative 1 Impacts
-  Alternative 2 Impacts
-  Fuel Modification Permanent Impacts
-  Vegetation Communities and Land Cover Types
- BBS - Brittlebush
- EUC - Eucalyptus
- NNG - California Annual Grassland Alliance
- DH - Disturbed Habitat
- DEV - Urban/Developed
- Special-Status Wildlife Observations**
-  Coastal California gnatcatcher



SOURCE: Bing Maps



FIGURE :
Project Impacts

Biological Resources Letter Report and MSHCP Consistency for Tentative Tract 37557, City of...

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Attachment B

Photo Documentation

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



Location 1: View of brittlebush alliance within northern portion of the project site, facing southwest.



Location 2: View of rocky outcrops within the brittlebush alliance within northern portion of the project site, facing northeast.



Location 3: View of eucalyptus alliance within northeastern portion of the project site, facing northeast.



Location 4: View of disturbed habitat (i.e., dirt roads) and erosional features within road, facing south.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



Location 5: View of California annual grassland from central portion of the project site, facing west.



Location 6: View of ephemeral drainage within eastern portion of the project site, facing north.



Location 7: View of deeply incised erosional feature within southwestern portion of the project site, facing northeast.



Location 8: View of ponding within the southern portion of the project site on February 22, 2019. A site visit on March 13, 2019 after adequate rains and was confirmed to not hold water for 7 days.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Attachment C

Vascular Plant Species

Eudicots

Vascular Species

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Malosma laurina—laurel sumac

Rhus ovata—sugarbush

* *Schinus molle*—Peruvian peppertree

Toxicodendron diversilobum—poison oak

ASTERACEAE—SUNFLOWER FAMILY

Artemisia californica—California sagebrush

Baccharis salicifolia—mulefat

Corethrogyne filaginifolia—sand-aster

Deinandra fasciculata—clustered tarweed

Encelia farinosa—brittle bush

Helianthus annuus—common sunflower

Pseudognaphalium californicum—ladies' tobacco

* *Sonchus oleraceus*—common sowthistle

BORAGINACEAE—BORAGE FAMILY

Amsinckia intermedia—common fiddleneck

Pectocarya linearis—sagebrush combseed

Phacelia distans—distant phacelia

Phacelia minor—wild canterbury bells

Plagiobothrys collinus—Cooper's popcornflower

BRASSICACEAE—MUSTARD FAMILY

* *Brassica tournefortii*—Tournefort's mustard

* *Hirschfeldia incana*—shortpod mustard

Lepidium nitidum—shining pepperweed

* *Sisymbrium orientale*—Indian hedgemustard

CACTACEAE—CACTUS FAMILY

Cylindropuntia californica var. *parkeri*—brownspined pricklypear

Opuntia littoralis—coast prickly pear

CHENOPODIACEAE—GOOSEFOOT FAMILY

* *Chenopodium murale*—nettleleaf goosefoot

- * *Salsola tragus*—prickly Russian thistle

CONVOLVULACEAE—MORNING-GLORY FAMILY

Calystegia macrostegia—island false bindweed

CUCURBITACEAE—GOURD FAMILY

Marah macrocarpa—Cucamonga manroot

EUPHORBIACEAE—SPURGE FAMILY

Croton setiger—dove weed

Stillingia linearifolia—queen's-root

FABACEAE—LEGUME FAMILY

Lupinus bicolor—miniature lupine

- * *Parkinsonia aculeata*—Jerusalem thorn

GERANIACEAE—GERANIUM FAMILY

- * *Erodium brachycarpum*—shortfruit stork's bill

- * *Erodium cicutarium*—redstem stork's bill

LAMIACEAE—MINT FAMILY

Salvia columbariae—chia

Salvia mellifera—black sage

MALVACEAE—MALLOW FAMILY

- * *Malva parviflora*—cheeseweed mallow

MYRTACEAE—MYRTLE FAMILY

- * *Eucalyptus camaldulensis*—river redgum

- * *Eucalyptus globulus*—Tasmanian bluegum

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Mirabilis laevis—desert wishbone-bush

ONAGRACEAE—EVENING PRIMROSE FAMILY

Clarkia purpurea—winecup clarkia

Epilobium canum—hummingbird trumpet

Eulobus californicus—California suncup

PAPAVERACEAE—POPPY FAMILY

Eschscholzia californica—California poppy

PLANTAGINACEAE—PLANTAIN FAMILY

- * *Plantago lanceolata*—narrowleaf plantain

PLATANACEAE—PLANE TREE, SYCAMORE FAMILY

Platanus racemosa—California sycamore

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum var. *polifolium*—California buckwheat

SALICACEAE—WILLOW FAMILY

Salix lasiolepis—arroyo willow

ZYGOPHYLLACEAE—CALTROP FAMILY

- * *Tribulus terrestris*—puncturevine

Monocots

Vascular Species

ARECACEAE—PALM FAMILY

- * *Washingtonia robusta*—Washington fan palm

POACEAE—GRASS FAMILY

- * *Arundo donax*—giant reed
- * *Avena barbata*—slender oat
- * *Bromus diandrus*—ripgut brome
- * *Bromus madritensis*—compact brome
- * *Hordeum murinum*—mouse barley
- * *Schismus barbatus*—common Mediterranean grass

- * signifies introduced (non-native) species

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Attachment D

Wildlife Species

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Bird

Blackbirds, Orioles and Allies

ICTERIDAE—BLACKBIRDS

Icterus bullockii—Bullock's oriole

Icterus cucullatus—hooded oriole

Sturnella neglecta—western meadowlark

Bushtits

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

Cardinals, Grosbeaks and Allies

CARDINALIDAE—CARDINALS AND ALLIES

Passerina amoena—lazuli bunting

Pheucticus melanocephalus—black-headed grosbeak

Piranga ludoviciana—western tanager

Falcons

FALCONIDAE—CARACARAS & FALCONS

Falco sparverius—American kestrel

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus psaltria—lesser goldfinch

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Tyrannus verticalis—western kingbird

Tyrannus vociferans—Cassin's kingbird

Hawks

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper’s hawk

Buteo jamaicensis—red-tailed hawk

Hummingbirds

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna’s hummingbird

Jays, Magpies and Crows

CORVIDAE—CROWS AND JAYS

Corvus brachyrhynchos—American crow

Corvus corax—common raven

Mockingbirds and Thrashers

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Toxostoma redivivum—California thrasher

New World Quail

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

Old World Warblers and Gnatcatchers

SYLVIIDAE—SYLVIID WARBLERS

Poliophtila californica californica—coastal California gnatcatcher

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

Swallows

HIRUNDINIDAE—SWALLOWS

Stelgidopteryx serripennis—northern rough-winged swallow

Wood Warblers and Allies

PARULIDAE—WOOD-WARBLERS

Cardellina pusilla—Wilson's warbler

Setophaga coronata—yellow-rumped warbler

Woodpeckers

PICIDAE—WOODPECKERS AND ALLIES

Dryobates nuttallii—Nuttall's woodpecker

Wrens

TROGLODYTIDAE—WRENS

Salpinctes obsoletus—rock wren

Thryomanes bewickii—Bewick's wren

New World Sparrows

PASSERELLIDAE—NEW WORLD SPARROWS

Melospiza crissalis—California towhee

Pipilo maculatus—spotted towhee

Spizella atrogularis—black-chinned sparrow

Zonotrichia leucophrys—white-crowned sparrow

Mammal

Hares and Rabbits

LEPORIDAE—HARES AND RABBITS

Sylvilagus audubonii—desert cottontail

Squirrels

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

Ungulates

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

Reptile

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus orcutti—granite spiny lizard

Uta stansburiana—common side-blotched lizard

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Attachment E

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
<i>Abronia villosa</i> var. <i>aurita</i>	chaparral sand-verbena	None/None/1B.1	None	Chaparral, Coastal scrub, Desert dunes; sandy/annual herb/(Jan)Mar-Sep/245-5250	Low potential to occur. The site is located within the species' known elevation range and suitable coastal scrub is present; however, the nearest occurrence is approximately 11.5 miles southeast of the site (CDFW 2019). Furthermore, no genera of <i>Abronia</i> was detected during the late February 2019 site visit.
<i>Allium munzii</i>	Munz's onion	FE/ST/1B.1	Narrow Endemic Plant Species	Chaparral, Cismontane woodland, Coastal scrub, Pinyon and juniper woodland, Valley and foothill grassland; mesic, clay/perennial bulbiferous herb/Apr-May/970-3510	Not expected to occur. The site is located within the species' known elevation range and suitable vegetation is present; however, the site lacks suitable clay soils to support this species. This species is restricted to clay soils with the exception of one population document to occur in association with pyroxenite outcrops (County Riverside 2003). The nearest occurrence is approximately 11 miles southwest of the site (CDFW 2019).
<i>Ambrosia pumila</i>	San Diego ambrosia	FE/None/1B.1	Narrow Endemic Plant Species	Chaparral, Coastal scrub, Valley and foothill grassland, Vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial	Not expected to occur. The site is outside of the species' known elevation range. The nearest occurrence is approximately 8 miles west

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				rhizomatous herb/Apr-Oct/65-1360	of the site (CDFW 2019).
<i>Arenaria paludicola</i>	marsh sandwort	FE/SE/1B.1	None	Marshes and swamps (freshwater or brackish); sandy, openings/perennial stoloniferous herb/May-Aug/5-560	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
<i>Astragalus hornii</i> var. <i>hornii</i>	Horn's milk-vetch	None/None/1B.1	None	Meadows and seeps, Playas; lake margins, alkaline/annual herb/May-Oct/195-2790	Not expected to occur. No suitable vegetation or alkaline soils present.
<i>Atriplex coronata</i> var. <i>notatior</i>	San Jacinto Valley crownscale	FE/None/1B.1	Criteria Area Survey Plant Species	Playas, Valley and foothill grassland (mesic), Vernal pools; alkaline/annual herb/Apr-Aug/455-1640	Not expected to occur. The site is located within the species' known elevation range and grasslands are present; however, this species is restricted to highly alkaline, silty-clay soils in association with Traver-Domino-Willow soil association (County of Riverside 2003) which are absent.
<i>Atriplex pacifica</i>	South Coast saltscale	None/None/1B.2	None	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/annual herb/Mar-Oct/0-460	Not expected to occur. The site is outside of the species' known elevation range.
<i>Atriplex parishii</i>	Parish's brittlescale	None/None/1B.1	Criteria Area Survey Plant Species	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June-Oct/80-6235	Not expected to occur. No suitable vegetation or alkaline soils present.
<i>Atriplex serenana</i> var. <i>davidsonii</i>	Davidson's saltscale	None/None/1B.2	Criteria Area Survey Plant Species	Coastal bluff scrub, Coastal scrub; alkaline/annual herb/Apr-Oct/30-655	Not expected to occur. The site is outside of the species' known elevation range.

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
<i>Berberis nevinii</i>	Nevin's barberry	FE/SE/1B.1	Criteria Area Survey Plant Species	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub; sandy or gravelly/perennial evergreen shrub/(Feb)Mar-June/225-2705	Not expected to occur. The site is located within the species' known elevation range, coastal scrub is present, and the nearest occurrence is approximately 4.2 miles west of the site (CDFW 2019); however, species is associated with coarse rocky soils in chaparral and gravelly wash margins in alluvial scrub (County of Riverside 2003) which are absent. Furthermore, this conspicuous evergreen shrub would likely have been detected during the February 2019 site visit.
<i>Brodiaea filifolia</i>	thread-leaved brodiaea	FT/SE/1B.1	Criteria Area Survey Plant Species	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools; often clay/perennial bulbiferous herb/Mar-June/80-3675	Not expected to occur. The site is located within the species' known elevation range and coastal scrub and grasslands are present; however, this species is associated with clay, or alkaline silty-clay soils (County of Riverside 2003) which are absent. The nearest occurrence is approximately 12.2 miles southeast of the site (CDFW 2019).
<i>Calochortus plummerae</i>	Plummer's mariposa lily	None/None/4.2	Covered ²	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous	Moderate potential to occur. The site is located within the species' known elevation

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				forest, Valley and foothill grassland; granitic, rocky/perennial bulbiferous herb/May-July/325-5575	range, suitable vegetation is present and rocky soils derived from granitic sources are present. The nearest occurrence is less than 1 miles north of the site (CDFW 2019).
<i>Carex comosa</i>	bristly sedge	None/None/2B.1	None	Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland/perennial rhizomatous herb/May-Sep/0-2050	Not expected to occur. The site is located within the species' known elevation range and grasslands are present; however, the nearest occurrence is approximately 6.6 miles north of the site and is from 1882 and has been extirpated (CDFW 2019). No other occurrences are recorded within the vicinity (i.e., CNDDDB nine-quad search).
<i>Centromadia pungens</i> ssp. <i>laevis</i>	smooth tarplant	None/None/1B.1	Criteria Area Survey Plant Species	Chenopod scrub, Meadows and seeps, Playas, Riparian woodland, Valley and foothill grassland; alkaline/annual herb/Apr-Nov/0-2100	Not expected to occur. The site is located within the species' known elevation range and grasslands are present; however, this species is known to occur on primarily alkaline soils (County of Riverside 2003) which are absent. The nearest occurrence is approximately 2.2 miles south of the site (CDFW 2019).

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>	salt marsh bird's-beak	FE/SE/1B.2	None	Coastal dunes, Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/ May-Oct(Nov)/0-100	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	None/None/1B.1	Covered ²	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; sandy or rocky, openings/ annual herb/Apr-June/ 900-4005	Moderate potential to occur. The site is located within the species' known elevation range, suitable vegetation and soils are present, and the nearest occurrence is less than 1 miles north of the site (CDFW 2019).
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	long-spined spineflower	None/None/1B.2	Covered	Chaparral, Coastal scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; often clay/annual herb/ Apr-July/95-5020	Not expected to occur. The site is located within the species' known elevation range and suitable vegetation is present; however, this species is often associated with clay soils which are absent. The nearest occurrence is approximately 9.3 miles southwest of the site (CDFW 2019).
<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Peruvian dodder	None/None/2B.2	None	Marshes and swamps (freshwater)/annual vine (parasitic)/July-Oct/45-920	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
<i>Cylindropuntia californica</i> var. <i>californica</i>	snake cholla	None/None/1B.1	None	Chaparral, Coastal scrub/ perennial stem succulent/ Apr-May/95-490	Not expected to occur. The site is outside of the species' known elevation range.

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
<i>Dodecahema leptoceras</i>	slender-horned spineflower	FE/SE/1B.1	Narrow Endemic Plant Species	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan); sandy/annual herb/Apr-June/655-2495	Not expected to occur. The site is located within the species' known elevation range and suitable soils are present; however, species is associated with alluvial fans. The coastal scrub present is not affiliated with an alluvial fan. The nearest occurrence is approximately 6.6 miles north of the site (CDFW 2019).
<i>Dudleya multicaulis</i>	many-stemmed dudleya	None/None/1B.2	Narrow Endemic Plant Species	Chaparral, Coastal scrub, Valley and foothill grassland; often clay/perennial herb/Apr-July/45-2590	Not expected to occur. The site is located within the species' known elevation range and suitable vegetation is present; however, this species is known to occur on clay soils (County of Riverside 2003) which are absent. The nearest occurrence is approximately 12.4 miles west of the site (CDFW 2019).
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woollystar	FE/SE/1B.1	Covered	Chaparral, Coastal scrub (alluvial fan); sandy or gravelly/perennial herb/Apr-Sep/295-2000	Not expected to occur. The site is located within the species' known elevation range; however, the site is not located within an alluvial fan and alluvial coastal scrub is not present. The nearest occurrence is approximately 5.6 miles north of the site, associated with the Santa Ana River (CDFW 2019).

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
<i>Galium californicum</i> ssp. <i>primum</i>	Alvin Meadow bedstraw	None/None/1B.2	Covered ²	Chaparral, Lower montane coniferous forest; granitic, sandy/perennial herb/ May-July/4425-5575	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower	None/None/1A	None	Marshes and swamps (coastal salt and freshwater)/ perennial rhizomatous herb/ Aug-Oct/30-5005	Not expected to occur. No suitable vegetation present.
<i>Horkelia cuneata</i> var. <i>puberula</i>	mesa horkelia	None/None/1B.1	None	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/ perennial herb/Feb-July(Sep)/ 225-2655	Low potential to occur. The site is located within the species' known elevation range and coastal scrub and suitable soils are present; however, the nearest occurrence is approximately 9.5 miles northwest of the site (CDFW 2019). Although a focused survey was not conducted, the February 2019 site visit was conducted during the species' known blooming period and no genera of <i>Horkelia</i> were observed.
<i>Imperata brevifolia</i>	California satintail	None/None/2B.1	None	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps (often alkali), Riparian scrub; mesic/ perennial rhizomatous herb/Sep-May/0-3985	Not expected to occur. The site is located within the species' known elevation range and coastal scrub is present; however, the site lacks alkali soils and the nearest occurrence is approximately 10.8 miles northeast of the site (CDFW 2019).

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	None/None/1B.1	Criteria Area Survey Plant Species	Marshes and swamps (coastal salt), Playas, Vernal pools/ annual herb/Feb-June/ 0-4005	Not expected to occur. No suitable vegetation or vernal pools present. Species is known on Traver, Domino, and Willows soils (County of Riverside 2003) which are absent.
<i>Lycium parishii</i>	Parish's desert-thorn	None/None/2B.3	None	Coastal scrub, Sonoran desert scrub/perennial shrub/ Mar-Apr/440-3280	Not expected to occur. The site is located within the species' known elevation range and coastal scrub is present; however, the nearest occurrence is approximately 10.3 miles north of the site (CDFW 2019) and this conspicuous perennial shrub would likely have been detected during the February 2019 site visit.
<i>Malacothamnus parishii</i>	Parish's bush-mallow	None/None/1A	None	Chaparral, Coastal scrub/ perennial deciduous shrub/ June-July/1000-1495	Not expected to occur. The site is outside of the species' known elevation range.
<i>Monardella pringlei</i>	Pringle's monardella	None/None/1A	None	Coastal scrub (sandy)/annual herb/May-June/980-1310	Not expected to occur. The site is outside of the species' known elevation range.
<i>Nasturtium gambelii</i>	Gambel's water cress	FE/ST/1B.1	None	Marshes and swamps (freshwater or brackish)/ perennial rhizomatous herb/Apr-Oct/15-1085	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
<i>Navarretia fossalis</i>	spreading navarretia	FT/None/1B.1	Narrow Endemic Plant Species	Chenopod scrub, Marshes and swamps (assorted shallow freshwater), Playas,	Not expected to occur. No suitable vegetation or vernal pools present. Species is

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				Vernal pools/annual herb/ Apr-June/95-2150	known to occur on saline-alkaline soils (County of Riverside 2003) which are absent.
<i>Phacelia stellaris</i>	Brand's star phacelia	None/None/1B.1	Narrow Endemic Plant Species	Coastal dunes, Coastal scrub/ annual herb/Mar-June/ 0-1310	Not expected to occur. The site is outside of the species' known elevation range.
<i>Pseudognaphalium leucocephalum</i>	white rabbit-tobacco	None/None/2B.2	None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; sandy, gravelly/perennial herb/ (July)Aug-Nov(Dec)/0-6890	Low potential to occur. The site is located within the species' known elevation range and suitable vegetation and soils are present; however, the nearest occurrence is approximately 16.4 miles northwest of the site (CDFW 2019).
<i>Ribes divaricatum</i> var. <i>parishii</i>	Parish's gooseberry	None/None/1A	None	Riparian woodland/perennial deciduous shrub/Feb-Apr/ 210-985	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
<i>Senecio aphanactis</i>	chaparral ragwort	None/None/2B.2	None	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan-Apr(May)/45-2625	Low potential to occur. The site is located within the species' known elevation range and suitable vegetation is present; however, this species is often associated with alkaline soils which are absent. The nearest occurrence is approximately 1.5 miles north of the site (CDFW 2019).

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State/CRPR)	MSHCP	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
<i>Sidalcea neomexicana</i>	salt spring checkerbloom	None/None/2B.2	None	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/Mar-June/45-5020	Low potential to occur. The site is located within the species' known elevation range and suitable vegetation is present; however, this species is often associated with alkaline soils which are absent. The nearest occurrence is approximately 9.2 miles north of the site (CDFW 2019).
<i>Sphenopholis obtusata</i>	prairie wedge grass	None/None/2B.2	None	Cismontane woodland, Meadows and seeps; mesic/perennial herb/Apr-July/980-6560	Not expected to occur. No suitable vegetation present.
<i>Symphyotrichum defoliatum</i>	San Bernardino aster	None/None/1B.2	None	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July-Nov(Dec)/5-6695	Low potential to occur. The site is located within the species' known elevation range and suitable vegetation is present; however, the site lacks vernally mesic conditions. The nearest occurrence is approximately 9.8 miles east of the site (CDFW 2019).
<i>Trichocoronis wrightii</i> var. <i>wrightii</i>	Wright's trichocoronis	None/None/2B.1	Narrow Endemic Plant Species	Meadows and seeps, Marshes and swamps, Riparian forest, Vernal pools; alkaline/annual herb/May-Sep/15-1425	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.

Federal

FE: Federally listed as endangered

FT: Federally listed as threatened

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ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN
THE STUDY AREA

State

SE: State listed as endangered

ST: State listed as threatened

CRPR: California Rare Plant Rank

1B: Plants rare, threatened, or endangered in California and elsewhere

2B: Plants rare, threatened, or endangered in California, but more common elsewhere

Threat Rank

0.1 – Seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)

0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)

0.3 – Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

MSHCP: Western Riverside County Multiple Species Habitat Conservation Plan

² These species will be considered to be Covered Species Adequately Conserved when conservation requirements identified in species-specific conservation objectives have been met (MSHCP Table 9-3).

ATTACHMENT E/ SPECIAL-STATUS PLANT SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Attachment F

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

ATTACHMENT F / SPECIAL-STATUS WILDLIFE SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
Amphibians					
<i>Rana muscosa</i>	mountain yellow-legged frog	FE/SE, WL	Covered	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. The study area does not support suitable aquatic habitat to support this species.
<i>Spea hammondi</i>	western spadefoot	None/SSC	Covered	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley-foothill woodlands, pastures, and other agriculture	Low potential to occur. The study area supports grasslands and coastal scrub; however, lacks vernal pools to support this species. Small areas of ponding where observed; however, the survey was conducted immediately following a moderate precipitation event. The nearest occurrence is approximately 2.5 miles east of the site (CDFW 2019).
Reptiles					
<i>Actinemys marmorata</i>	western pond turtle	None/SSC	Covered	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter.	Not expected to occur. The study area does not support suitable aquatic habitat for this species.
<i>Anniella stebbinsi</i>	southern California legless lizard	None/SSC	None	Coastal dunes, stabilized dunes, beaches, dry washes, valley-foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Low potential to occur. Sparse vegetation and loamy soils are present. The nearest occurrence is approximately 2.5 miles northeast of the site (CDFW 2019).
<i>Arizona elegans occidentalis</i>	California glossy snake	None/SSC	None	Commonly occurs in desert regions throughout Southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Low potential to occur. Open areas with scattered brush and rocky areas are present; however, commonly occur in desert regions. The nearest occurrence is approximately 3.3 miles west of the site (CDFW 2019).

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ATTACHMENT F / SPECIAL-STATUS WILDLIFE SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
<i>Aspidoscelis tigris stejnegeri</i>	San Diegan tiger whiptail	None/SSC	Covered	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Low potential to occur. No suitable chaparral or riparian areas are present. The site supports a minimal amount of Eucalyptus woodland. The nearest occurrence is approximately 4.9 miles south of the site (CDFW 2019).
<i>Coleonyx variegatus abbotti</i>	San Diego banded gecko	None/SSC	Covered	Rocky areas within coastal scrub and chaparral.	Moderate potential to occur. Suitable rocky areas within coastal scrub are present. The nearest occurrence is approximately 5.4 miles north of the site (CDFW 2019).
<i>Crotalus ruber</i>	red diamondback rattlesnake	None/SSC	Covered	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats.	High potential to occur. Suitable vegetation is present and there are numerous known occurrences within 1-mile of the site, with one occurrence overlapping the southwestern portion of the site (CDFW 2019).
<i>Phrynosoma blainvillii</i>	Blainville's horned lizard	None/SSC	Covered	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annual grassland habitats.	High potential to occur. Suitable open areas within coastal scrub and grasslands are present. There is known occurrence that overlaps the site with two other known occurrences within 5 miles of the site (CDFW 2019).
<i>Salvadora hexalepis virgultea</i>	coast patch-nosed snake	None/SSC	None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites.	Low potential to occur. Shrubby vegetation is present; however, small mammal burrows were not detected during the February 2019 site visit.
<i>Thamnophis hammondi</i>	two-striped gartersnake	None/SSC	None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools.	Not expected to occur. The study area does not support suitable aquatic habitat for this species.

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ATTACHMENT F / SPECIAL-STATUS WILDLIFE SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
Birds					
<i>Agelaius tricolor</i> (nesting colony)	tricolored blackbird	None/ST	Covered	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture.	Not expected to occur. The study area does not support freshwater or emergent wetland habitat that would support nesting for this species.
<i>Asio otus</i> (nesting)	long-eared owl	None/SSC	None	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Low potential to occur. There is a minimal amount of suitable habitat present (i.e., dense stand of eucalyptus) and the nearest occurrence is approximately 10.7 miles south of the site (CDFW 2019).
<i>Athene cunicularia</i> (burrow sites and some wintering sites)	burrowing owl	None/SSC	Covered	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.	Moderate potential to occur. The study area supports grassland and scrub vegetation communities suitable for this species. However, no California ground squirrels or their burrows were observed on the project site. The project site does contain rock outcrops with marginal interstitial space that could provide refuge for this species. The nearest occurrence is approximately 3.5 miles south of the site (CDFW 2019).
<i>Buteo swainsoni</i> (nesting)	Swainson's hawk	None/ST	Covered	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture.	Low potential to nest; moderate potential to forage. The study area supports a minor amount of woodlands (i.e. eucalyptus) for nesting. Open areas suitable for foraging are present. The nearest occurrence is approximately 5.9 miles west of the site (CDFW 2019).
<i>Coccyzus americanus occidentalis</i> (nesting)	western yellow-billed cuckoo	FT, BCC/SE, WL	Covered	Nests in dense, wide riparian woodlands and forest with well-developed understories.	Not expected to occur. The study area does not contain dense riparian woodlands that would support this species.

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ATTACHMENT F / SPECIAL-STATUS WILDLIFE SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
<i>Coturnicops noveboracensis</i>	yellow rail	BCC/SSC	None	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	Not expected to occur. The study area does not contain aquatic habitats or suitable wetland vegetation that would support this species.
<i>Elanus leucurus</i> (nesting)	white-tailed kite	None/FP	Covered	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands.	Low potential to nest; moderate potential to forage. The study area supports a minor amount of woodlands (i.e. eucalyptus) for nesting. Open areas suitable for foraging are present. The nearest occurrence is approximately 11.7 miles east of the site (CDFW 2019).
<i>Empidonax traillii extimus</i> (nesting)	southwestern willow flycatcher	FE/SE	Covered	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. The study area does not contain dense riparian habitats that would support this species.
<i>Haliaeetus leucocephalus</i> (nesting and wintering)	bald eagle	FD, BCC/SE, FP	Covered	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains.	Not expected to nest or forage. The study area does not support forested areas near aquatic habitat for this species to nest and/or winter.
<i>Icteria virens</i> (nesting)	yellow-breasted chat	None/SSC	Covered	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush.	Not expected to nest or forage. The project site does not contain dense riparian woodlands that would support this species.
<i>Lanius ludovicianus</i> (nesting)	loggerhead shrike	None/SSC	Covered	Nests and forages in open habitats with scattered shrubs, trees, or other perches.	Moderate potential to occur. The project site supports suitable habitat (shrubs with open habitat) for this species to nest. The nearest occurrence is approximately 3 miles south of the site (CDFW 2019).
<i>Laterallus jamaicensis coturniculus</i>	California black rail	BCC/FP, ST	None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not expected to occur. The study area does not contain dense riparian habitats that would support this species.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

ATTACHMENT F / SPECIAL-STATUS WILDLIFE SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
<i>Poliioptila californica californica</i>	coastal California gnatcatcher	FT/SSC, WL	Covered	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level.	Observed. Two individuals were observed within brittlebush scrub within the northwestern corner of the study area during the site visit conducted on February 22, 2019.
<i>Setophaga petechia</i> (nesting)	yellow warbler	BCC/SSC	Covered	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. The study area does not contain dense riparian or other suitable habitats that would support this species.
<i>Vireo bellii pusillus</i> (nesting)	least Bell's vireo	FE/SE, WL	Covered	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season.	Not expected to nest or forage. The study area does not contain dense riparian thickets that would support this species.
Fishes					
<i>Catostomus santaanae</i>	Santa Ana sucker	FT/None	Covered	Small, shallow, cool, clear streams less than 7 meters (23 feet) in width and a few centimeters to more than a meter (1.5 inches to more than 3 feet) in depth; substrates are generally coarse gravel, rubble, and boulder	Not expected to occur. The study area does not support aquatic habitat for this species.
<i>Gila orcuttii</i>	arroyo chub	None/SSC	Covered	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. The study area does not support aquatic habitat for this species.
<i>Oncorhynchus mykiss irideus</i> pop. 10	southern steelhead - southern California DPS	FE/None	None	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur. The study area does not support aquatic habitat for this species.

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Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
<i>Rhinichthys osculus</i> ssp. 3	Santa Ana speckled dace	None/SSC	None	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. The study area does not support aquatic habitat for this species.
Mammals					
<i>Antrozous pallidus</i>	pallid bat	None/SSC	None	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees.	Low potential to roost, moderate potential to forage. The study area supports marginal rocky outcrops and trees for roosting. Open grassland and shrublands present for foraging.
<i>Chaetodipus fallax fallax</i>	northwestern San Diego pocket mouse	None/SSC	Covered	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland.	Low potential to occur. The study area is within the elevation range for this species and supports coastal scrub and annual grassland habitat suitable for this species; however, no small mammal burrows were observed on the project site. The nearest occurrence is approximately 3.1 miles south of the site (CDFW 2018).
<i>Dipodomys merriami parvus</i>	San Bernardino kangaroo rat	FE/SSC	Covered	Sparse scrub habitat, alluvial scrub/coastal scrub habitats on gravelly and sandy soils near river and stream terraces	Low potential to occur. Sparse scrub habitat; however, alluvial habitat near river and stream terraces are absent. The nearest occurrence is approximately 3.3 miles north of the site (CDFW 2018).
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat	FE/ST	Covered	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas.	Moderate potential to occur. The study area is within the elevation range for this species and supports grassland habitat suitable for this species. However, no small mammal burrows were observed on the project site. Two historic occurrences (1988) partially overlap the outer edges of the study area.

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Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
<i>Eumops perotis californicus</i>	western mastiff bat	None/SSC	None	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels.	Not expected to roost, moderate potential to forage. No suitable canyons or cliffs are present for roosting. Suitable habitat (coastal scrub) is present for foraging.
<i>Lasiurus xanthinus</i>	western yellow bat	None/SSC	None	Valley-foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms.	Not expected to roost or forage. The study does not contain riparian habitat, desert wash, or palm habitat suitable for this species.
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	None/SSC	Covered	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands.	Low potential to occur. The study area contains open grasslands and coastal scrub suitable for this species; however, the site is located immediately adjacent to an urbanized area. The nearest occurrence is 5.5 miles east of the site (CDFW 2019).
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	None/SSC	Covered	Coastal scrub, desert scrub, chaparral, cacti, rocky areas.	Low potential to occur. The study area supports suitable coastal scrub and rock habitat for this species; however, no woodrat middens were observed within the project site and the nearest occurrence is approximately 7.8 miles south of the site (CDFW 2019).
<i>Nyctinomops femorosaccus</i>	pocketed free-tailed bat	None/SSC	None	Pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with dropoffs, caverns, and buildings.	Not expected to occur. The study area does not support desert riparian or desert wash habitats suitable for this species.

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Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
<i>Onychomys torridus ramona</i>	southern grasshopper mouse	None/SSC	None	Grassland and sparse coastal scrub.	Low potential to occur. The study area supports suitable grassland and coastal habitat for this species. However, no small mammal burrows were observed on the project site. The nearest occurrence is approximately 2.7 miles south of the site (CDFW 2019).
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	None/SSC	Covered	Lower-elevation grassland, alluvial sage scrub, and coastal scrub.	Low potential to occur. The study area supports suitable grassland and coastal scrub habitat for this species. However, no small mammal burrows were observed on the project site. The nearest occurrence is approximately 2.9 east of the site (CDFW 2019).
<i>Taxidea taxus</i>	American badger	None/SSC	None	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Low potential to occur. The study area does support sparse grassland habitat with fine sandy soils; however, no small mammal burrows were observed on the project site and the site is located immediately adjacent to an urbanized area.
Invertebrates					
<i>Euphydryas editha quino</i>	quino checkerspot butterfly	FE/None	Covered	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include <i>Plantago erecta</i> , <i>Antirrhinum coulterianum</i> , and <i>Plantago patagonica</i> (Silverado Occurrence Complex)	Not expected to occur. The study area supports suitable habitat (coastal scrub and grasslands), but lacks cryptogamic crusts or clay soils. Additionally, no known host plants are present on the project site. The nearest occurrence is approximately 11.1 miles south of the site (CDFW 2019).
<i>Rhaphiomidas terminatus abdominalis</i>	Delhi Sands flower-loving fly	FE/None	Covered	Delhi fine sandy soils and dunes, scrub and ruderal vegetation in the sand verbena series with <50% cover	Not expected to occur. The study area lacks Delhi fine sandy soils to support this species.

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ATTACHMENT F / SPECIAL-STATUS WILDLIFE SPECIES DETECTED OR POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name	Common Name	Status (Federal/State)	MSHCP	Habitat	Potential to Occur
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	FE/None	Covered	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. The study area does not support vernal pools suitable for this species; however, the project site contains topographic variation that could lead to pooling and two pools of standing water were detected during the February 2019 site visit. However, these features were visited on March 13, 2019 after adequate rainfall to verify if these features held water for 7 days. The results of this visit confirmed these features were dry and therefore did not hold water for 7 days. These results in conjunction with the soils being well draining and not susceptible to prolonged inundation, this species is not expected to occur. The nearest occurrence is approximately 3.9 miles southeast of the site (CDFW 2019).

Status Legend

Federal

FD: Federally delisted; monitored for 5 years

FE: Federally listed as endangered

FT: Federally listed as threatened

State

FP: CDFW Fully Protected Species

SE: State listed as endangered

ST: State listed as threatened

SSC: California Species of Special Concern

MSHCP: Western Riverside County Multiple Species Conservation Plan

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

October 21, 2022

11675

Shizao Zheng
1378 West Zhorgshan Road
Ningbo City, Zhejiang Province
China

**Subject: Jurisdictional Waters Delineation Update Report for the Gateway Heights Project,
City of Moreno Valley, Riverside County, California**

Dear Mr. Zheng:

This report documents the results of an update to a jurisdictional waters delineation for the Gateway Heights Project (project). This report was initially submitted in 2019 but has now been revised with an updated project name, footprint, and impact analysis. The 32.8-acre project site is comprised of Assessor's Parcel Numbers 256-150-001 and 256-040-009, as well as rights-of-way and is located north of Jennings Court and east of Morton Road in Riverside County (Figure 1, Project Location; figures are provided in Attachment A). The proposed project includes the residential development of 108 detached condominium units, parking, open space, utility lines, fuel modification zones, and storm drain lines. The study area consists of the proposed project and a 50-foot buffer. The project also includes an undercrossing beneath Morton Road. The collection system will begin on the east side of Morton Road and consist of a concrete lined drop in the channel bottom and concrete headwall structure to result in no increase to water surface elevation. As a result of negotiations with adjacent landowners, two alternatives for the outlet structure are proposed. In Alternative 1, the outlet structure will cross Morton Road directly across the street from the proposed Project into an existing channel. (Figure 2A, Alternative 1 Site Plan) In Alternative 2, the outfall structure will travel south along Morton Road for approximately 170 feet before depositing into an existing channel on the west side of Morton Road south of its intersection with Jennings Court (Figure 2B, Alternative 2 Site Plan). The headwall and concrete spillway will extend for approximately 40 feet. To aid in reducing downstream erosion, a rip rap apron will extend for an additional 40 feet. Photos of the jurisdictional features are provided in Attachment B.

Development of the project site was previously proposed by Kincaid Development as Tentative Tract 33626, for which a mitigated negative declaration was prepared in accordance with the California Environmental Quality Act (CEQA) and approved by the City of Moreno Valley on December 20, 2007. A Delineation of Jurisdictional Waters and Wetlands report was prepared in October 2007 (Archer 2007) in support of the CEQA document for Tentative Tract 33626. Tentative Tract 33626 has since expired and an updated site plan and CEQA document is being prepared. This letter report serves as an update to the 2007 Delineation of Jurisdictional Waters and Wetlands report and relies upon the 2007 report, provided as Attachment C, for background and existing conditions information.

This letter report is intended to (1) describe the existing conditions of jurisdictional waters within the study area, (2) quantify impacts to jurisdictional waters that would result from implementation of the proposed project, and (3) provide a discussion of potential water resource permits required for construction of the project.

1 Methods

1.1 Literature Review

The following available resources were reviewed to assess the potential for jurisdictional waters: aerial photographs (Google Earth 2019; Historic Aerials 2019); the U.S. Geological Survey 7.5-minute topographic quadrangle (USGS 2019); a Natural Resources Conservation Service soil map (USDA 2019); U.S. Environmental Protection Agency Watershed Assessment, Tracking & Environmental Results System (EPA 2019), which includes the National Hydrography Dataset; and the National Wetland Inventory (USFWS 2019).

The 2007 Delineation of Jurisdictional Waters and Wetlands was reviewed and relied upon for background and existing conditions information and is included within Attachment C of this report.

1.2 Jurisdictional Delineation

On February 22, 2019, Dudek biologists Anna Cassady and Britney Strittmater updated a delineation of jurisdictional waters within the proposed project, including a 50-foot buffer (study area), where access was available. Dudek Biologist Tracy Park conducted a biological survey of the study area associated with Alternative 2 on September 21, 2022, from 1:30 p.m. to 3:25 p.m. The study area was surveyed on foot and was surveyed for the following types of features:

- Waters of the United States, including wetlands, under the jurisdiction of the U.S. Army Corps of Engineers (USACE), pursuant to Section 404 of the federal Clean Water Act
- Waters of the state under the jurisdiction of the California Regional Water Quality Control Board (RWQCB), pursuant to Section 401 of the federal Clean Water Act and the Porter-Cologne Water Quality Control Act, as wetlands or drainages
- Streambeds under the jurisdiction of the California Department of Fish and Wildlife (CDFW), pursuant to Section 1602 of the California Fish and Game Code

Non-wetland waters of the United States were delineated based on the presence of an ordinary high water mark (OHWM) as determined using the methodology in A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008a). The 2015 Clean Water Rule excludes “erosional features, including gullies, rills, and ephemeral features such as ephemeral streams that do not have bed and banks and ordinary high water mark” as “Waters of the United States” (80 FR 37053). Wetland waters of the United States were delineated based on methodology described in the 1987 Corps of Engineers Wetland Delineation Manual (USACE 1987) and the USACE Regional Supplement (USACE 2008b). Pursuant to the federal Clean Water Act, wetland waters of the United States include those supporting all three wetlands criteria described in the USACE manual: hydric soils, hydrology, and hydrophytic vegetation.

Areas regulated by the RWQCB are generally coincident with waters of the United States regulated by the USACE, but can also include isolated waters of the state that have evidence of surface water inundation pursuant to the state Porter-Cologne Water Quality Control Act. Isolated features are delineated at the OHWM, at the outer limits of hydrophytic vegetation, or at the outer rim of depressional features if relevant. The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Water Resources Control Board

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2019) also implements the three parameters criteria (hydric soils, hydrology, and hydrophytic vegetation) for delineating wetland waters of the state.

Streambeds are typically delineated from top of bank to top of bank or the extent of associated riparian vegetation beyond the top of bank. For shallow drainages and washes that do not support riparian vegetation, the top-of-bank measurement may be the same as the OHWM measurement.

A map of the jurisdictional waters from the Delineation of Jurisdictional Waters and Wetlands prepared by Linda Archer in 2007 was reviewed in the field (Attachment C). All features mapped were reviewed and the project footprint was walked on foot to confirm jurisdictional waters mapped matched existing conditions. Updates to the boundaries of jurisdictional waters were made based on current existing conditions. Since none of the features meet the minimum criteria for wetland vegetation or hydrology, soils were not sampled. Photos of the jurisdictional features were taken in accordance with USACE guidelines and are provided in Attachment B.

2 Results of Survey

In 2007, as described in the Delineation of Jurisdictional Waters and Wetlands report (Attachment C), five features within the project site were determined to be jurisdictional waters: Drainage 1, Tributary 1, and Seeps 1 through 3. The 2007 report determined Drainage 1 to be waters of the United States under the jurisdiction of USACE, RWQCB, and CDFW. Tributary 1 was determined to be waters of the State under the jurisdiction of RWQCB and CDFW based on a significant nexus analysis. Three seeps were determined to be isolated waters under the jurisdiction of RWQCB. A non-jurisdictional upland swale was also mapped within the project site.

As further described below, Drainage 1 and Tributary 1 were identified within the study area during the 2019 survey and determined to be waters of the United States under the jurisdiction of USACE, RWQCB, and CDFW. The three seeps were not present at the time of the 2019 survey. Two features, Drainage 2 and Tributary 2, which were not delineated in 2007 as they were outside the impact area, were mapped during the 2019 survey as waters of the United States. Finally, several swales and erosional features were identified within the study area and determined to not be jurisdictional waters.

The 2019 limits of jurisdictional waters are provided in Figure 2, Jurisdictional Delineation. Representative photos are provided in Attachment B. Table 1 provides an acreages list of jurisdictional waters.

2.1 Jurisdictional Waters

Drainage 1

As discussed in the Delineation of Jurisdictional Waters and Wetlands report (Attachment C), Drainage 1 is an ephemeral drainage occurring along the southeastern project boundary. It originates off site in the hills to the northeast and flows southwest, meandering on and off site and ultimately flowing off site at the southwest corner of the project boundary and connecting to Box Springs Canyon Wash approximately 0.5 miles southwest of the study area. An OHWM is evident throughout most of the natural channel characterized by absence of vegetation, defined bed/bank, sediment deposition, and debris wracking. Within upstream portions of the channel the OHWM becomes obscured for short distances and includes evidence of sheet flow. Consistent with the 2007 delineation, an OHWM is not evident at the southern tip of the project, just north of Morton Road. Flows continue off site as sheetflow south along the west side of Morton Road. Flows

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cross Morton Road following road-grading contours as discussed in Attachment C, ultimately connecting to Box Springs Canyon Wash, which flows to the Santa Ana River. The OHWM averages 1 to 6 feet in width.

Scattered vegetation throughout the drainage included upland species such as common Mediterranean grass (*Schismus barbatus*), bromes (*Bromus* spp.), redstem stork's bill (*Erodium cicutarium*), cheeseweed mallow (*Malva parviflora*), common fiddleneck (*Amsinckia intermedia*), and Tournefort's mustard (*Brassica tournefortii*). A single mulefat (*Baccaris salififolia*; Facultative [FAC]) and two California sycamores (*Platanus racemosa*; FAC) were observed within the downstream portions of the channel; however, these were not dominant species and did not meet the hydrophytic vegetation criteria to be considered a wetland.

Drainage 1 supports an OHWM and connects to Box Springs Canyon Wash, which ultimately flows to the Santa Ana River, which continues west, flowing into the Pacific Ocean. Based on the presence of OHWM indicators and connectivity to a waters of the United States, Drainage 1 was determined to be non-wetland waters of the United States under the jurisdiction of the USACE and RWQCB, and a streambed under the jurisdiction of CDFW.

Tributary 1

Tributary 1, a tributary to Drainage 1, is an unvegetated ephemeral drainage. In 2007, this feature was observed to originate on site immediately south of the eucalyptus (*Eucalyptus* spp.) alliance. However, the 2019 delineation observed OHWM indicators approximately 120 feet northeast of the eucalyptus alliance. Due to the steep topography, the remainder of this feature was mapped based on topography to the northeastern end of the project boundary. This feature appears to originate off site in the hills to the northeast, flowing northeast to southwest and connecting to Drainage 1 within the southern portion of the project site. An intermittent OHWM is evident throughout most of the natural channel based on bed/bank, absence of vegetation, sediment deposition, and some shelving. There is an area where the OHWM became obscured for a short distance just south of the eucalyptus alliance where it appears some disturbance has occurred resulting in a dirt path. This area includes evidence of sheet flow; however, the OHWM becomes more defined within the brittlebush (*Encelia farinosa*) alliance immediately south. Due to this feature being mapped for a shorter distance in 2007, it appears to have become more defined over time. The OHWM averages 1 to 4 feet in width. Scattered vegetation throughout the drainage included upland species such as bromes, redstem stork's bill, and common fiddleneck.

Tributary 1 supports an OHWM and connects to Box Springs Canyon Wash, which ultimately flows to the Santa Ana River, which continues west, flowing into the Pacific Ocean. As previously mentioned, the 2007 delineation determined Tributary 1 to be a waters of the state under the jurisdiction of RWQCB and CDFW, based on this feature being a second order tributary with no significant nexus. Since the 2007 delineation, changes have been implemented with respect to processing of jurisdictional determination. This delineation report is being prepared consistent with a Preliminary Jurisdictional Determination that does not include a significant nexus analysis. Therefore, based on the presence of OHWM indicators and connectivity to waters of the United States, Tributary 1 was determined to be non-wetland waters of the United States under the jurisdiction of the USACE and RWQCB, and a streambed under the jurisdiction of CDFW.

Drainage 2

This feature was not mapped during the 2007 delineation due to it being outside of the development footprint. Drainage 2 is an ephemeral drainage located within the northwestern portion of the study area. This feature appears to originate to the northeast, outside of the study area, within Box Springs Mountain. Flows continue southwest outside of the study area for approximately 820 feet, continuing to flow as sheetflow west along Morton Road. Flows cross Morton Road and

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continue to flow west 0.45 miles under the railroad tracks through a culvert into Box Springs Canyon Wash. An OHWM is evident throughout most of the natural channel based on absence of vegetation, defined bed/bank, sediment deposition, shelving, and debris wracking. The OHWM averages 1 to 5 feet in width. The banks of the streambed were incised banks between 2 and 3 feet in height. Dominant vegetation outside of the OHWM included brittlebush.

Drainage 2 supports an OHWM and connects to Box Springs Canyon Wash, which ultimately flows to the Santa Ana River, which continues west, flowing into the Pacific Ocean. Based on the presence of OHWM indicators and connectivity to waters of the United States, Drainage 1 was determined to be potential non-wetland waters of the United States under the jurisdiction of the USACE and RWQCB, and a streambed under the jurisdiction of CDFW.

Tributary 2

This feature was not mapped during the 2007 delineation. Tributary 2 is located within the northwestern portion of the study area, originating from runoff from Box Springs Mountain. This feature is an unvegetated ephemeral drainage flowing northeast to southwest, originating off site and conveying flows to Drainage 2 within the northwest portion of the study area. The northern portion of this feature appears more erosional with deeply incised vertical banks approximately 3 feet in height; however, an intermittent OHWM is evident throughout most of the natural channel due to absence of vegetation, defined bed/bank, sediment deposition, and some debris wracking. There is an area where the OHWM became obscured for a short distance just west of the project site where it sheetflows across the dirt road; however, the OHWM becomes more defined within the brittlebush alliance immediately west. The OHWM averages 3 feet in width. Vegetation observed outside of the OHWM included brittlebush.

Tributary 2 supports an OHWM and connects to Box Springs Canyon Wash, which ultimately flows to the Santa Ana River, which continues west, flowing into the Pacific Ocean. Based on the presence of OHWM indicators and connectivity to waters of the United States, Tributary 2 was determined to be potential non-wetland waters of the United States under the jurisdiction of the USACE and RWQCB, and a streambed under the jurisdiction of CDFW.

2.2 Non-Jurisdictional Features

Upland Swales

An upland swale was mapped and discussed in the Delineation of Jurisdictional Waters and Wetlands report (Attachment C). This upland swale, hereafter referred to as Upland Swale 1, is described as a round-bottom feature with no OHWM. This feature appears to have become more incised and erosional since the 2007 delineation, with incised vertical banks approximately 2 to 3 feet in height. Runoff from a disturbed trail/road to the north appears to be contributing to the erosional nature of this feature and runoff conveyed by this feature terminates as sheetflow before reaching Tributary 1. Dense vegetation growth along the banks obscures this feature; this vegetation is comprised of brittlebush, common fiddleneck, and Tournefort's mustard. Based on its characteristics as an erosional feature, this feature is not considered jurisdictional waters under USACE, RWQCB, or CDFW.

Upland Swale 2 was not mapped during the 2007 delineation. This feature is a round-bottom topographic feature and does not contain OHWM indicators; therefore, this feature is not considered to be jurisdictional waters under USACE, RWQCB, or CDFW.

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Erosional Features

The study area contains five erosional features. Erosional Features 1, 2, 3, and 4 are located within the central portion of the study area and appear to be associated with the natural topography of the site in conjunction with the dirt roads present; they appear to flow northeast to southwest. These features are deeply incised with vertical shelves averaging 2 to 3 feet in height. Erosional Feature 5 is located within the northwestern portion of the study area. Runoff from Box Springs Mountain appears to be contributing to this feature, directing flows northeast to southwest. It is approximately 1 foot wide with vertical shelves average 2 feet in height.

Erosional features are not considered to be jurisdictional waters under USACE, RWQCB, or CDFW.

Seeps

Three seeps were identified during the 2007 jurisdictional delineation, two within the project site and one off site. The jurisdictional delineation update did not locate any of these features during the February 2019 site visit. The approximate locations of the seeps were investigated and no saturation, standing water, or hydrophytic vegetation such as cattails (*Typha* spp.) or arroyo willow (*Salix lasiolepis*) were observed. It is presumed that due to the time elapsed since the 2007 delineation and extended drought conditions, these areas are no longer supporting a high enough groundwater table to support hydrophytic vegetation or hydrology. Furthermore, the area received above average rainfall, with 3.78 inches of rain in February 2019. Specifically, the Riverside weather station located just southwest of the Interstate 215 and State Route 60 interchange received 1.10 inches on February 15, 2019, and 1.39 inches on February 14, 2019 (NRCS 2019). Based on this, it would have been evident if any depressions capable of retaining water were present. Therefore, it assumed the three seeps identified in 2007 are no longer present.

2.3 Jurisdictional Delineation Conclusion

The results of the updated jurisdictional delineation concluded there are approximately 0.29 acres of potential non-wetland waters of the United States under the jurisdiction of USACE and the RWQCB, and a streambed under the jurisdiction of CDFW. Table 1 summarizes the total acreage of these features within the study area. The features are depicted on Figure 2.

Table 1. Summary of Jurisdictional Waters within the Study Area

Feature	Vegetation Community and/or Land Cover	Non-Wetland Waters of the United States and State (USACE/RWQCB/CDFW) (Acres/Linear Feet)	Total Acreage/ Linear Feet*
Drainage 1	Brittlebush (<i>Encelia farinosa</i>) Alliance	0.01/210	0.01/210
	California Annual Grassland Alliance	0.12/1,316	0.12/1,316
	Eucalyptus (<i>Eucalyptus</i> spp.) Alliance	0.01/188	0.01/188
<i>Drainage 1 USACE/RWQCB/CDFW Total</i>			<i>0.15/1,714</i>

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

TO: SHIZAO ZHENG
 SUBJECT: JURISDICTIONAL WATERS DELINEATION UPDATE REPORT FOR THE GATEWAY HEIGHTS PROJECT,
 CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

Table 1. Summary of Jurisdictional Waters within the Study Area

Feature	Vegetation Community and/or Land Cover	Non-Wetland Waters of the United States and State (USACE/RWQCB/CDFW) (Acres/Linear Feet)	Total Acreage/ Linear Feet*
Tributary 1	Brittlebush Alliance	0.08/1,054	0.08/1,054
	California Annual Grassland Alliance	0.02/415	0.02/415
	Eucalyptus Alliance	0.01/250	0.01/250
<i>Tributary 1 USACE/RWQCB/CDFW Total</i>			<i>0.11/1,720</i>
Drainage 2	Brittlebush Alliance	0.03/406	0.03/406
	Disturbed Habitat	<0.01/17	<0.01/17
<i>Drainage 2 USACE/RWQCB/CDFW Total</i>			<i>0.03/423</i>
Tributary 2	Brittlebush Alliance	0.01/112	0.01/112
<i>Tributary 2 USACE/RWQCB/CDFW Total</i>			<i>0.01/112</i>
Grand Total*			0.29/4,014

Notes:

* Acreage may not total due to rounding.

USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.

3 Impacts

The proposed project would construct a new residential development that would result in permanent impacts from construction of new residential homes and associated infrastructure. All potentially jurisdictional waters within the impact footprint were considered permanently impacted. No temporary impacts would result from the proposed project.

The permanent impacts to potential jurisdictional waters are summarized in Table 2 and depicted on Figure 3, Project Impacts. According to the draft Project Specific Water Quality Management Plan (Sikand Engineering Associates 2019), flows from Tributary 1, in addition to runoff from Box Springs Mountain, will be directed to a debris basin located within the northern portion of the proposed development. Stormwater within the project site will be directed and discharged into a water quality basin at the southwest corner of the project site.

The project also includes a 100-foot fuel modification zone that will protect most of the development units. In areas where the fuel modification zone encroaches on jurisdictional waters, the fuel modification zone would be modified to avoid direct impacts to these resources (Dudek 2021).

Table 2. Permanent Impacts to Jurisdictional Waters within the Project Site

Feature	Vegetation Community and/or Land Cover	Alternative 1 Non-Wetland Waters of the United States and State (USACE/RWQCB/CDFW) (Acres/Linear Feet) *	Alternative 2 Non-Wetland Waters of the United States and State (USACE/RWQCB/CDFW) (Acres/Linear Feet) *
Drainage 1	Brittlebush (<i>Encelia farinosa</i>) Alliance	—	—

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

TO: SHIZAO ZHENG
 SUBJECT: JURISDICTIONAL WATERS DELINEATION UPDATE REPORT FOR THE GATEWAY HEIGHTS PROJECT,
 CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

Table 2. Permanent Impacts to Jurisdictional Waters within the Project Site

Feature	Vegetation Community and/or Land Cover	Alternative 1 Non-Wetland Waters of the United States and State (USACE/RWQCB/CDFW) (Acres/Linear Feet) *	Alternative 2 Non-Wetland Waters of the United States and State (USACE/RWQCB/CDFW) (Acres/Linear Feet) *
	California Annual Grassland Alliance	0.01/38	0.01/76
	Eucalyptus (<i>Eucalyptus</i> spp.) Alliance	—	<0.01/24
	Disturbed Habitat	—	—
	Urban/Developed	—	—
<i>Drainage 1 USACE/RWQCB/CDFW Total</i>		<i>0.01/38</i>	<i>0.01/100</i>
Tributary 1	Brittlebush Alliance	0.02/307	0.02/307
	California Annual Grassland Alliance	0.01/284	0.01/284
	Eucalyptus Alliance	<0.01/82	<0.01/82
<i>Tributary 1 USACE/RWQCB/CDFW Total</i>		<i>0.03/674</i>	<i>0.03/674</i>
Drainage 2	Brittlebush Alliance	—	—
	Disturbed Habitat	—	—
<i>Drainage 2 USACE/RWQCB/CDFW Total</i>		<i>—</i>	<i>—</i>
Tributary 2	Brittlebush Alliance	—	—
<i>Tributary 2 USACE/RWQCB/CDFW Total</i>		<i>—</i>	<i>—</i>
Grand Total*		0.04/712	0.05/774

Notes:

* Acreage may not total due to rounding.

USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.

4 Conclusion

The proposed project includes the residential development of Gateway Heights and other project activities would impact jurisdictional waters.

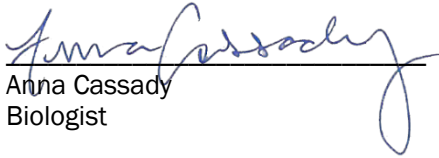
The USACE requires a permit pursuant to Section 404 of the Clean Water Act (404 permit) prior to discharging fill into waters of the United States. Impacts associated with residential development projects are covered under Nationwide Permit 29, so long as impacts do not exceed 0.5 acres of waters of the United States. A pre-construction notification to the USACE is required for use of Nationwide Permit 29. A Water Quality Certification is required from the RWQCB pursuant to Section 401 of the Clean Water Act (401 Certification) for any federal action, including a

TO: SHIZAO ZHENG
 SUBJECT: JURISDICTIONAL WATERS DELINEATION UPDATE REPORT FOR THE GATEWAY HEIGHTS PROJECT,
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404 permit; therefore, an application for a 401 Certification must be submitted to the RWQCB. A notification of a Streambed Alteration Agreement to CDFW is also required prior to modification of jurisdictional streambeds. Mitigation will be required for permanent loss of waters or functions and values of waters.

Should you have any questions regarding this report or require additional information, please do not hesitate to contact me at 951.300.1088 or acassady@dudek.com.

Sincerely,



Anna Cassady
 Biologist

Att.: Attachment A – Figures
 Attachment B – Site Photos
 Attachment C – Delineation of Jurisdictional Waters and Wetlands

5 References

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TO: SHIZAO ZHENG
SUBJECT: JURISDICTIONAL WATERS DELINEATION UPDATE REPORT FOR THE GATEWAY HEIGHTS PROJECT,
CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

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Attachment A

Figures

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Attachment B

Site Photos

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Attachment C

Delineation of Jurisdictional Waters and Wetlands

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

July 6, 2021

Jason Ackerman
Ackerman Law PC
3200 E. Guasti Road, Suite 100
Ontario, California 91761

VIA EMAIL
Jason.ackerman@ackermanlawpc.com

Subject: Results of Special Status Plant Surveys for the Gateway Heights Project in the City of Moreno Valley, Riverside County, California

Dear Mr. Ackerman:

This Letter Report presents the findings of special status plant surveys conducted in 2021 for the Gateway Heights Project (hereinafter referred to as “the Project”). The Project is located in an area that does not require focused surveys for Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) Criteria Area or Narrow Endemic plant species. Pursuant to Mitigation Measure BIO-2 in the *Biological Resources Letter Report and MSHCP Consistency for Tentative Tract 37557, City of Moreno Valley, Riverside County, California* (Dudek 2019), focused surveys are required for Plummer’s mariposa-lily (*Calochortus plummerae*) and Parry’s spineflower (*Chorizanthe parryi* var. *parryi*). .

PROJECT LOCATION AND DESCRIPTION

The Project site is located approximately one mile north of the interchange between State Route 60 (SR-60) and Interstate 205 (I-205) in the City of Moreno Valley in Riverside County, California (Figure 1). It is approximately 110 feet north of Jennings Court and immediately east of Morton Road. It is bounded on the north and west property lines by the Riverside County jurisdictional border. It is comprised of Tax Assessor Parcel Number 256-150-001. The Project site is depicted on the U.S. Geological Survey’s (USGS’) Riverside East 7.5-minute quadrangle at Township 2 South, Range 4 West, Section 34 (Figure 2).

The Project involves construction of a total of 108 detached condominium units on 17.30 acres of the 32.70-acre Project site. The dwelling units would be organized in thirteen “clusters” of between eight and ten units each. The Project also includes a 3.1-acre park, detention basins, internal roads, public utilities, and a 100-foot-wide fuel modification zone along the northern and eastern boundaries of the Project site. The remaining 15.40 acres of the Project site would be rezoned to Open Space and dedicated as conservation land.

ENVIRONMENTAL SETTING

Topography consists of relatively steep slopes in the northeast half of the Project site with gentler slopes in the southwest corner. Elevations range from approximately 1,590 feet above mean sea level (msl) in the southwest corner to 2,080 feet above msl in the northeast corner. Several erosional features with deeply incised banks occur throughout the Project site and are the result of sheet flow off Box Springs Mountain. Soils mapped on the Project site include

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Cieneba sandy loam, 15 to 50 percent slopes, eroded; Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded; Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded; Monserate sandy loam, 8 to 15 percent slopes, eroded; and rockland (USDA NRCS 2021).

Vegetation on the Project site include brittlebush scrub, California annual grassland, and eucalyptus woodland; disturbed and urban/developed areas also occur (Dudek 2019). The eucalyptus woodland contains trees that are greater than 15 feet tall. Land uses in the vicinity consist of residential development to the south and undeveloped open space to the north, east, and west, including the Box Springs Mountain Park and Reserve.

METHODS

According to the Riverside County Regional Conservation Authority MSHCP Information Mapping Application, focused plant surveys are not required for Criteria Area or Narrow Endemic plant species on the Project site. As part of their literature review for the biological resources letter report, Dudek performed a literature search to identify special status plant species reported from the vicinity of the Project site that may require avoidance, minimization, or mitigation measures if present on the Project site. Sources reviewed include the USGS Fontana, San Bernardino South, Redlands, Riverside West, Riverside East, Sunnymead, Lake Matthews, Steele Peak, and Perris 7.5-minute quadrangles in the California Native Plant Society's Inventory of Rare and Endangered Plants, the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database, and the CalFlora Database (Dudek 2019).

Based on the literature review, two species have been reported in the Project vicinity that have moderate or higher potential to occur: Parry's spineflower and Plummer's mariposa-lily. Suitable habitat for both species is present on the Project site.

Rainfall received in the winter and spring determines the germination of many annual and perennial herb species. The region received approximately 3.5 inches of precipitation between May 2020 and April 2021 (data taken from Perris – Menifee – South Coast Valleys Station 240) (CIMIS 2021). The average annual precipitation in the region is 12.44 inches (data taken from Elsinore, CA US Station) (NOAA 2021). Plummer's mariposa-lily was observed blooming in early and mid-June 2021 along the Santa Ana River in San Bernardino County and in eastern Los Angeles County, respectively. Since this species was observed blooming, it can be inferred that on-site conditions were suitable for growth of this species during the field surveys. A reference population of Parry's spineflower in Fontana was checked on April 20; no individuals (vegetative or blooming) were observed. Because the species was not observed at the reference population, it cannot be determined whether on-site conditions were suitable for germination and growth at the time of the field surveys.

Botanical surveys conducted by Psomas in 2021 were floristic in nature and generally followed the protocols created by the CDFW (CDFW 2018). The botanical survey area included all suitable habitat within the proposed project footprint, including a 100-foot buffer (Figure 3). Surveys were conducted by Psomas Senior Biologist Allison Rudalevige on April 20 and June 7, 2021. The surveys covered approximately 20 acres and the total number of person-hours spent surveying was 2.5 hours.

A systematic survey was conducted by walking meandering transects through the survey area. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified using taxonomic keys, descriptions, and illustrations in Jepson Flora Project (2020) and Baldwin et al. (2012) to the taxonomic level necessary to determine whether they are a special status species. Nomenclature of plant taxa conform to the *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2021) for special status species and the Jepson eFlora (Jepson Flora

Jason Ackerman
 July 6, 2021
 Page 3

Project 2020) for all other taxa. A list of all plant species observed during special status plant surveys is included in Attachment A.

SURVEY RESULTS

Table 1 identifies the special status plants reported from the literature review with moderate or high potential to occur, along with their status, their potential to occur on the Project site, and the survey results.

One special status plant species, paniculate tarplant (*Deinandra paniculata*), a species with a CRPR of 4.2, was observed on the Project site.

**TABLE 1
 SPECIAL STATUS PLANT SPECIES REPORTED
 FROM THE PROJECT SITE VICINITY**

Species	Status			Species Background*	Nearest Reported Location	Potential to Occur/Results of Focused Surveys
	USFWS	CDFW	CRPR			
<i>Calochortus plummerae</i> Plummer's mariposa-lily	—	—	4.2	Perennial bulbiferous herb found in granitic or rocky soil of chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland at elevations between 330 and 5,580 feet above msl. Blooming Period: May – July.	Reported approximately 1 mile north of the Project site (CCH 2021).	Not expected to occur. Suitable habitat is present but species not observed during focused surveys occurring at a time when reference populations were blooming.
<i>Chorizanthe parryi</i> var. <i>parryi</i> Parry's spineflower	—	—	1B.1	Annual herb found in sandy or rocky openings of chaparral, cismontane woodland, coastal sage scrub, and valley and foothill grasslands at elevations between 900 and 4,005 feet above msl; Blooming Period: April – June.	Reported approximately 1 mile north of the Project site (CCH 2021).	Limited potential to occur. Suitable habitat is present but species not observed during focused surveys. (Note: the species was not observed at a reference population that was checked during the typical blooming period for the species).

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Jason Ackerman
 July 6, 2021
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**TABLE 1
 SPECIAL STATUS PLANT SPECIES REPORTED
 FROM THE PROJECT SITE VICINITY**

Species	Status			Species Background*	Nearest Reported Location	Potential to Occur/Results of Focused Surveys
	USFWS	CDFW	CRPR			
<i>Deinandra paniculata</i> paniculate tarplant	—	—	4.2	Annual herb found in coastal scrub, valley and foothill grassland, and vernal pools, usually in vernal mesic or sandy soil at elevations between 80 and 3,085 feet above msl. Blooming Period: April – November (occasionally in March).	Reported less than ½ mile south of the Project site (CCH 2021).	Observed during focused surveys. Approximately 350 individuals observed in ruderal openings along the disturbed area in the southwestern portion of the survey area. Approximately 20 percent vegetative, 50 percent blooming, and 30 percent fruiting. Associated with California encelia (<i>Encelia californica</i>), shortpod mustard (<i>Hirschfeldia incana</i>), and red brome (<i>Bromus rubens</i>).
USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; CRPR: California Rare Plant Rank; msl: mean sea level. * Source: CNPS 2021 LEGEND: CRPR 1B Plants Rare, Threatened, or Endangered in California and elsewhere 4 Plants of limited distribution – A Watch List CRPR Threat Code Extensions .1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat) .2 Fairly threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)						

CONCLUSIONS

One special status plant species, paniculate tarplant, was observed on the Project site. This species is not covered by the MSHCP. As a species with a CRPR of 4.2, it is considered to be of limited distribution and on a “watch list”. Multiple occurrences of this species are present within the Project region (CCH 2021). Species with a CRPR of 4.2 are not generally considered constraints on development and no mitigation would be required for impacts on this species.

Plummer’s mariposa-lily and Parry’s spineflower were not observed on the Project site during focused surveys. There is always a small chance for false negative survey results as species may not be detectable at the time of the surveys. Reference populations and regional rainfall amounts are monitored to ensure the scientific adequacy of focused surveys. Given the drought conditions during the 2020/2021 wet season, observations made at reference populations are important for determining whether survey results are valid. Plummer’s mariposa-lily were observed blooming at reference populations, so conditions on the Project site during the surveys were likely suitable to detect this species, if present. The negative focused

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Jason Ackerman
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survey results indicate that this species is absent from the Project site. Parry's spineflower, however, was not detected at a reference population. Therefore, the negative survey results do not reliably confirm the species' absence from the Project site.

Per the guidelines of the MSHCP, both Plummer's mariposa-lily and Parry's spineflower were originally designated by the Regional Conservation Authority (RCA) as covered species not adequately conserved. They are considered adequately conserved when certain species-specific conservation objectives have been met. For Plummer's mariposa-lily, the requirement is six localities with at least 500 individuals each preserved within the MSHCP Conservation Area. For Parry's spineflower, the requirement is 10 localities with at least 1,000 individuals each preserved within the MSHCP Conservation Area. The MSHCP conservation objectives for Plummer's mariposa-lily and Parry's spineflower were met in 2012 and 2013, per reporting prepared as part of the MSHCP monitoring program (RCA 2013, 2015). Because the RCA has demonstrated that the conservation objectives for both species continue to be met each year, they are considered adequately conserved and take is covered by participation in the MSHCP. Therefore, no additional measures are required.

If you have any comments or questions, please contact Steve Norton at Steve.Norton@psomas.com or 714.481.8037.

Sincerely,

PSOMAS



Steve Norton
Project Manager



Allison D. Rudalevige
Senior Biologist

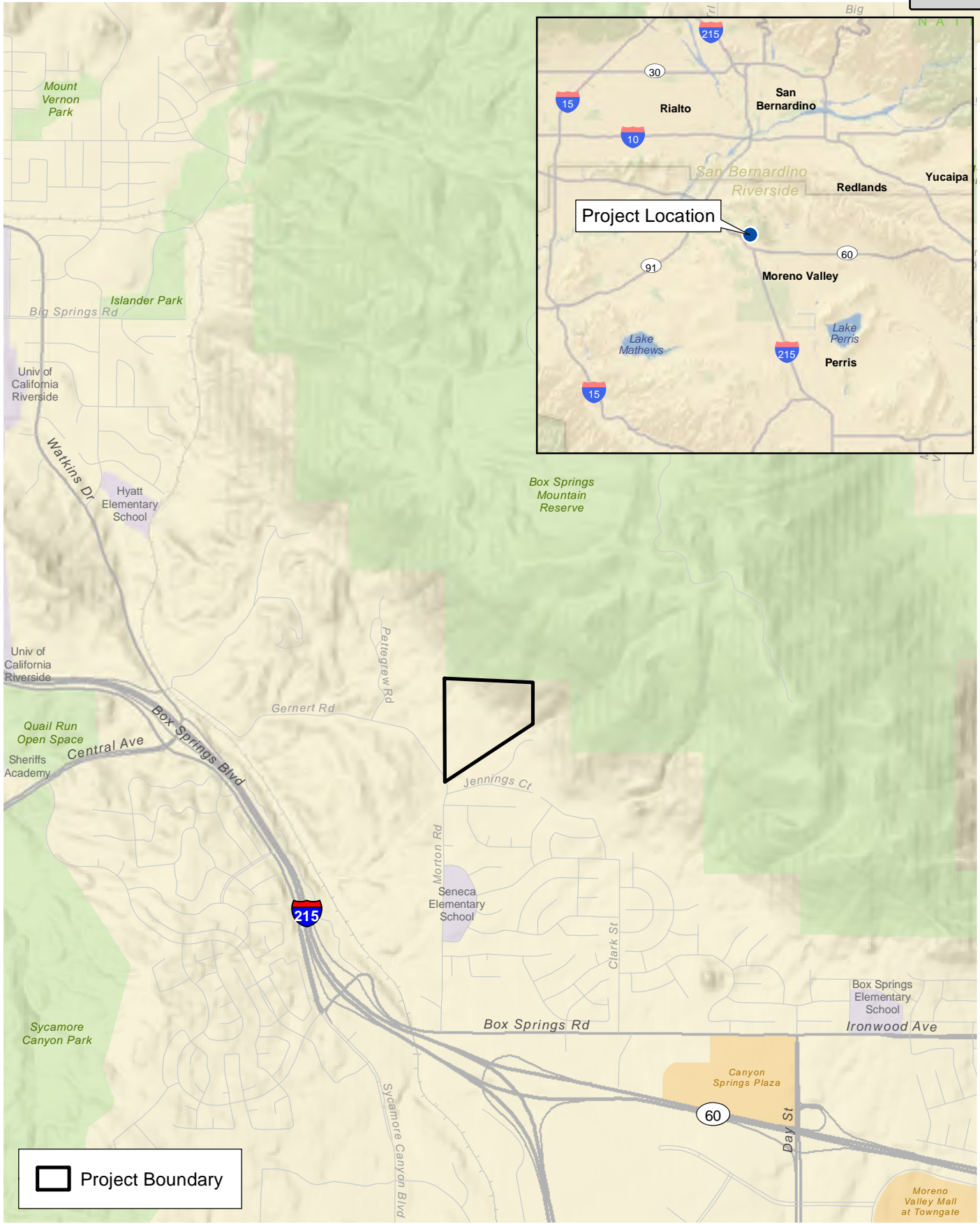
Enclosures: Figure 1 – Project Location
 Figure 2 – USGS 7.5-Minute Digital Quadrangle
 Figure 3 – Survey Area
 Attachment A – Plant Compendium

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 July 6, 2021
 Page 6

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Vicinity Map

Gateway Heights Project

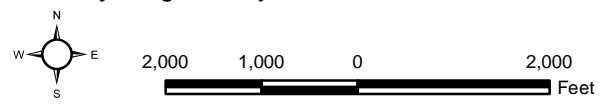
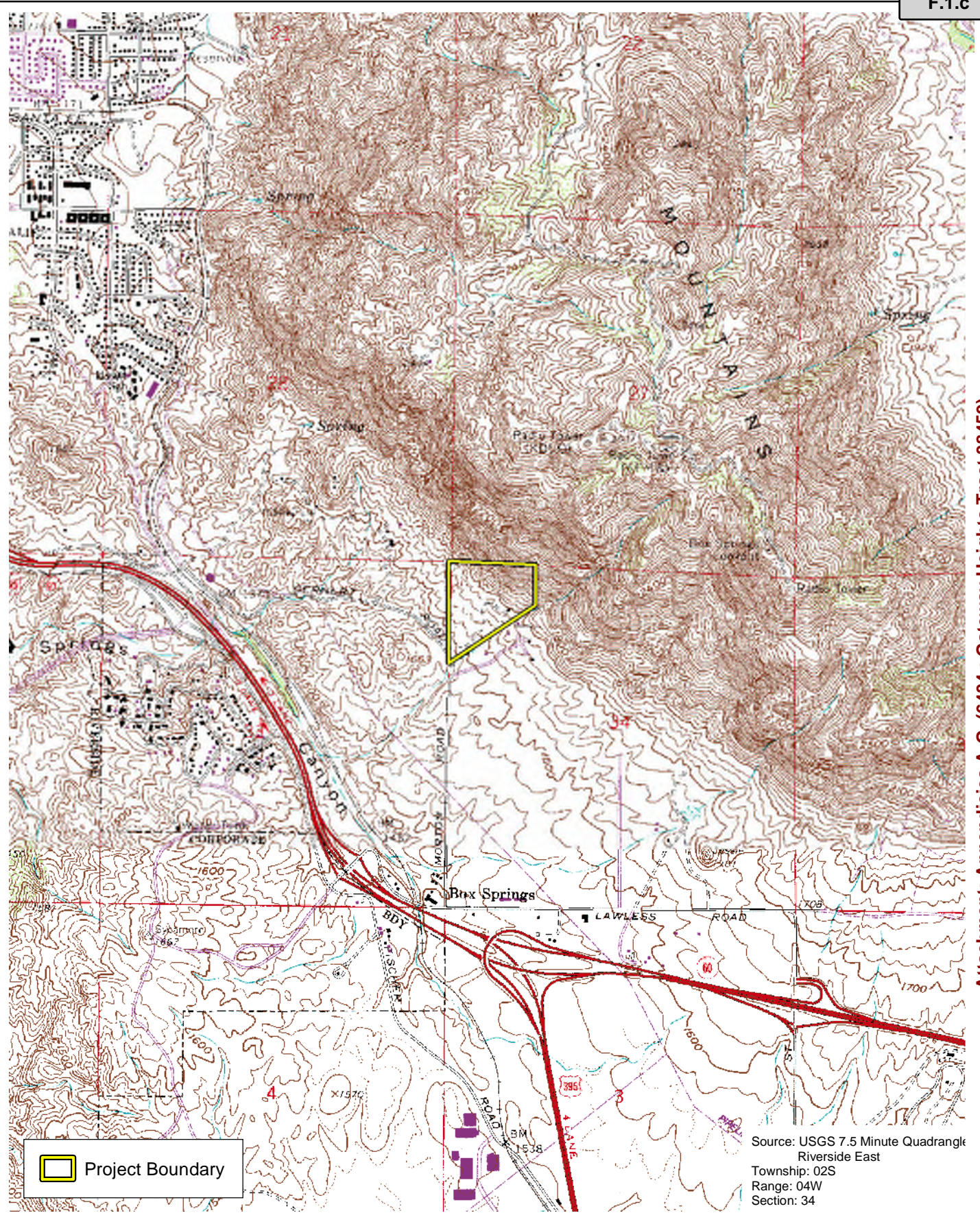


Figure 1



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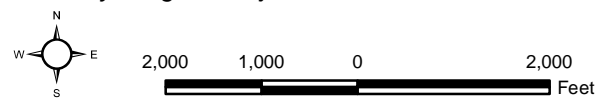
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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Topographic Map
Gateway Heights Project

Figure 2





Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

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Aerial Source: Esri, Maxar 201

Survey Area

Gateway Heights Project

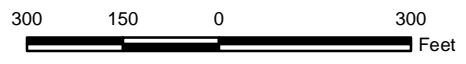
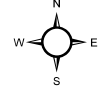


Figure 3



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ATTACHMENT A
PLANT COMPENDIUM

PLANT SPECIES OBSERVED DURING SPECIAL STATUS PLANT SURVEYS

Species	
Scientific Name	Common Name
EUDICOTS	
ADOXACEAE – MUSKROOT FAMILY	
<i>Sambucus nigra ssp. caerulea</i>	blue elderberry
ANACARDIACEAE – SUMAC FAMILY	
<i>Malosma laurina</i>	laurel sumac
<i>Schinus molle</i> *	pepper tree
<i>Schinus terebinthifolius</i> *	Brazilian pepper tree
ASTERACEAE – SUNFLOWER FAMILY	
<i>Ambrosia psilostachya</i>	western ragweed
<i>Artemisia californica</i>	California sagebrush
<i>Baccharis salicifolia ssp. salicifolia</i>	mule fat
<i>Centaurea melitensis</i> *	toocalote
<i>Corethrogyne filaginifolia</i>	filago-leaved sand-aster
<i>Cotula australis</i> *	Australian cotula
<i>Deinandra paniculata</i>	paniculate tarplant
<i>Encelia farinosa</i>	brittlebush
<i>Ericameria pinifolia</i>	pine-bush
<i>Erigeron foliosus</i>	leafy fleabane
<i>Helianthus annuus</i>	annual sunflower
BORAGINACEAE – BORAGE FAMILY	
<i>Amsinckia intermedia</i>	common fiddleneck
<i>Amsinckia menziesii</i>	common fiddleneck
<i>Pectocarya linearis ssp. ferocula</i>	narrow-toothed pectocarya
<i>Phacelia distans</i>	distant phacelia
BRASSICACEAE – MUSTARD FAMILY	
<i>Hirschfeldia incana</i> *	grayish shortpod mustard
<i>Sisymbrium irio</i> *	London rocket
CACTACEAE – CACTUS FAMILY	
<i>Cylindropuntia californica var. parkeri</i>	cane cholla
<i>Opuntia littoralis</i>	seaside prickly-pear
CHENOPODIACEAE – GOOSEFOOT FAMILY	
<i>Chenopodium murale</i> *	wall-growing pigweed
<i>Salsola tragus</i> *	Russian thistle
CUCURBITACEAE – GOURD FAMILY	
<i>Marah macrocarpa</i>	chilicothe
EUPHORBIACEAE – SPURGE FAMILY	
<i>Croton setiger</i>	turkey-mullein
FABACEAE – LEGUME FAMILY	
<i>Acmispon glaber</i>	deerweed
<i>Parkinsonia aculeata</i> *	Mexican palo verde
GERANIACEAE – GERANIUM FAMILY	
<i>Erodium cicutarium</i> *	redstem filaree

PLANT SPECIES OBSERVED DURING SPECIAL STATUS PLANT SURVEYS

Species	
Scientific Name	Common Name
LAMIACEAE – MINT FAMILY	
<i>Marrubium vulgare</i> *	common horehound
<i>Salvia mellifera</i>	black sage
MYRTACEAE – MYRTLE FAMILY	
<i>Eucalyptus camaldulensis</i> *	red gum
<i>Eucalyptus globulus</i> *	blue gum
NYCTAGINACEAE – FOUR O'CLOCK FAMILY	
<i>Mirabilis laevis var. crassifolia</i>	wishbone bush
PLATANACEAE – SYCAMORE FAMILY	
<i>Platanus racemosa</i>	western sycamore
POLYGONACEAE – BUCKWHEAT FAMILY	
<i>Eriogonum fasciculatum</i>	California buckwheat
SALICACEAE – WILLOW FAMILY	
<i>Populus fremontii ssp. fremontii</i>	Fremont cottonwood
SOLANACEAE – NIGHTSHADE FAMILY	
<i>Datura wrightii</i>	Wright's jimsonweed
<i>Nicotiana glauca</i> *	tree tobacco
<i>Solanum xanti</i>	Xantus' nightshade
MONOCOTS	
ARECACEAE – PALM FAMILY	
<i>Washingtonia robusta</i> *	Mexican fan palm
POACEAE – GRASS FAMILY	
<i>Arundo donax</i> *	giant reed
<i>Avena barbata</i> *	slender wild oat
<i>Avena fatua</i> *	wild oat
<i>Bromus diandrus</i> *	ripgut grass
<i>Bromus rubens</i> *	red brome
<i>Hordeum murinum</i> *	wall barley
<i>Pennisetum setaceum</i> *	crimson fountain grass
<i>Schismus barbatus</i> *	barbed Mediterranean grass
THEMIDACEAE – BRODIAEA FAMILY	
<i>Dipterostemon capitatus</i>	blue dicks
* Non-native or invasive species	

July 7, 2021

Jason Ackerman
Ackerman Law PC
3200 E. Guasti Road, Suite 1000
Ontario, CA 91761

VIA EMAIL
jason.ackerman@ackermanlawpc.com

Subject: Results of a Burrowing Owl Survey for the Gateway Heights Project, City of Moreno Valley, California

Dear Mr. Ackerman:

This Letter Report presents the results of a focused burrowing owl survey conducted for the Gateway Heights Project (hereinafter referred to as “the Project site”), located at Tax Assessor Parcel Number (APN) 256-150-001 in the City of Moreno Valley, Riverside County, California. The burrowing owl survey was conducted in accordance with the Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Area (Riverside 2006).

PROJECT LOCATION AND DESCRIPTION

The Project site is generally located north of the State Route 60 (SR-60) and Interstate 215 (I-215) interchange. It is specifically located approximately 110-feet north of Jennings Court and immediately east of Morton Road in the western portion of the City of Moreno Valley (Figure 1). Although the Project is located entirely within the City of Moreno Valley, it is bounded on the northerly and westerly property lines by the Riverside County jurisdictional border. The Project site is located in Section 34 of Township 2 South, Range 4 West, Riverside East US Geologic Survey 7.5-minute quadrangle map (Figure 2). The approximate center of the Project site is at longitude 117°17'39.77"W and latitude 33°57'34.95"N.

The Project involves construction of a total of 108 detached condominium units on 17.30 acres of the 32.70-acre Project Site approximately. The dwelling units would be organized in thirteen “clusters” of between eight and ten units each. The condominium units would range from 1,400 to 1,602 square feet in interior space. The remaining 15.40 acres of the Project Site would be rezoned to Open Space (OS) and dedicated as conservation land.

ENVIRONMENTAL SETTING

The Project site is characterized as open, vacant lands situated in the southwestern foothills of the Box Springs Mountains. Elevations in the Project site range from approximately 1,590 feet above mean sea level (amsl) in the southwest corner to 2,080 feet amsl in the northeast corner.

The Project site is surrounded by undeveloped land to the north, east, and west with residential development to the south. The Box Springs Mountain Park and Reserve is located north of the Project site, which is owned by several entities including the County of Riverside, University of California, and Western Riverside County Regional Conservation Authority.

5 Hutton Centre Drive
Suite 300
Santa Ana, CA 92707

Tel 714.751.7373
www.Psomas.com

Mr. Ackerman
July 7, 2021
Page 2

Several erosional features with deep incised banks occur throughout the Project site and are the result of sheet flow off Box Springs Mountain.

Sometime between 1942 and 1955, the northeastern portion of the Project site was developed with residences, which were accessible from a dirt access road. Although the residences were previously removed, the dirt road remains along with eucalyptus trees, which are assumed to have been planted around the previous residences. Also, several dirt off-highway vehicle trails traverse the Project site.

REGULATORY BACKGROUND

As a project within the jurisdiction of the MSHCP, surveys for burrowing owl are required as part of the environmental review process. The MSHCP Additional Surveys Needs and Procedures identify a specific burrowing owl survey area within the MSHCP Plan Area. The MSHCP also identifies species-specific objectives for burrowing owl, namely Species-Specific Objectives 5 and 6, both of which require burrowing owl surveys if suitable habitat occurs on a proposed project site (Dudek 2003).

SURVEY METHODS

A survey protocol to address species-specific objectives for burrowing owl was developed for the MSHCP (Riverside 2006). This protocol identifies that surveys are to be conducted during the breeding season (March 1 through August 31) to describe if, when, and how the site is used by burrowing owls. Surveys shall be conducted in two parts: Part A includes focused burrow surveys and Part B includes focused burrowing owl surveys. Surveys should be conducted during weather that is conducive to observing owls outside their burrows and detecting burrowing owl sign. Surveys will not be accepted if they are conducted during rain, high winds (> 20 mph), dense fog, or temperatures over 90°F. Part B surveys should be conducted in the morning one hour before sunrise to two hours after sunrise or in the early evening two hours before sunset to one hour after sunset. Focused burrowing owl surveys will consist of site visits on four separate days. The first one may be conducted concurrent with the focused burrow survey. Pre-construction surveys shall be conducted within 30 days prior to ground disturbance to avoid direct take of burrowing owls, if any are present on the project site (MSHCP Species-Specific Objective 6).

Burrow Survey

Psomas Biologist Cristhian Mace conducted the focused burrow survey on March 13, 2021, and updated the results of that survey during the May 3, June 3, and 18, 2021. The burrow survey and subsequent updates were conducted concurrently with the focused burrowing owl surveys. The survey area included suitable habitat on the Project site and within a 500-foot buffer area (Figure 3). The Biologist walked the survey area in transects spaced approximately 100 feet (30 meters) apart to achieve 100 percent visual coverage. The weather conditions during the survey were suitable for bird activity and consisted of mild temperatures (i.e., 60 to 80 degrees Fahrenheit) with wind speeds no more than 11 miles per hour, and an absence of dense fog. Furthermore, the first survey was not conducted within five days following a rain event. The focused burrow survey conditions are summarized in Table 1.

Mr. Ackerman
 July 7, 2021
 Page 3

**TABLE 1.
 FOCUSED BURROW SURVEY CONDITIONS**

Date	Survey Type	Time Start/End	Temperature (°F) Start/End	Wind Speed (mph) Start/End	Cloud Cover (%) Start/End
3/31/2021	Burrow Survey 1	7:45 AM – 12:15 PM	56/77	1–4/4–7	0/0
5/13/2021	Burrow Survey Update 1	7:35 AM – 11:45 AM	56/73	6–7/9–11	0/0
6/3/2021	Burrow Survey Update 2	7:40 AM – 12:00 PM	55/80	0–1/2–5	0/0
6/18/2021	Burrow Survey Update 3	7:50 AM – 11:35 AM	57/78	0–1/2–5	0/0

Any natural or man-made cavities large enough to allow a burrowing owl to enter were inspected for evidence of occupation and mapped. Evidence of occupation may include prey remains, cast pellets, whitewash, feathers, and observations of owls adjacent to burrows. Binoculars were used to inspect burrows, crevices, and potential perches such as rocks, fence posts, and other elevated structures for the presence of this species. Any active, potentially active, or inactive burrows in the survey area were recorded in the field using handheld Global Positioning System (GPS) units. An active burrow is defined as a burrow with confirmed sign of active use (i.e., burrowing owl observed or fresh scat). A potentially active burrow is defined as a burrow that is structurally suitable for burrowing owl (with or without sign). An inactive burrow is one that appears old, is collapsing, and is structurally blocked so that an animal would need to physically modify the entrance to enter it. No burrows were altered during the burrow survey effort. The dimensions of each burrow were recorded and are included in Attachment B (Table B-1). All wildlife observed were recorded in field notes and are also listed in Attachment B (Table B-2).

Burrows that were marked as potentially suitable during the survey underwent a follow-up burrowing owl survey to determine if the burrows were occupied (see methods below).

Burrowing Owl Survey

The burrowing owl survey was conducted following Part B of the survey methods in the Western Riverside County MSHCP (Riverside 2006). The MSHCP recommends crepuscular surveys (i.e., occurring near dawn and dusk) to increase the potential of detecting an active burrowing owl. The purpose of this survey was to identify any active burrowing owl burrows within study area per the requirements in the MSHCP.

Psomas Biologist Cristhian Mace conducted the burrowing owl surveys on March 31, May 13, June 3, and 18, 2021. The survey area included a 500-foot buffer area around the proposed development footprint (Figure 3). The Biologist walked the survey area in transects spaced approximately 100 feet (30 meters) apart to achieve 100 percent visual coverage. The survey area was scanned for burrowing owl or sign of their presence (e.g., pellets, scat, prey remains, whitewash, decoration) using binoculars at the start of each transect and every 328 feet (100 meters). The surveys were conducted between one hour before sunrise and up to two hours afterward. The weather conditions during the survey were suitable for bird activity and consisted of mild temperatures (i.e., 60 to 80 degrees Fahrenheit) with wind speeds no more than 11 miles per hour.

As stated above, any natural or man-made cavities large enough to allow a burrowing owl to enter were inspected for evidence of occupation and mapped. Evidence of occupation may include prey remains, cast

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Mr. Ackerman
 July 7, 2021
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pellets, whitewash, feathers, and observations of owls adjacent to burrows. Binoculars were used to inspect burrows, crevices, and potential perches such as rocks, fence posts, and other elevated structures for the presence of this species. Any active burrows with either the presence of burrowing owls or sign in the survey area were recorded in the field using handheld GPS units. No burrows were altered during the burrowing owl survey effort. All wildlife observed were recorded in field notes and are also listed in Attachment B (Table B-2). Survey conditions during the burrowing owl surveys are shown in Table 2.

**TABLE 2
 FOCUSED BURROWING OWL SURVEY CONDITIONS**

Date	Survey Type	Time Start/End	Temperature (°F) Start/End	Wind Speed (mph) Start/End	Cloud Cover (%) Start/End
3/31/2021	Crepuscular BUOW (Morning) Survey 1	5:15 AM – 7:45 AM	55/61	0–2/1–4	0/0
5/13/2021	Crepuscular BUOW (Morning) Survey 2	5:15 AM – 7:35 AM	54/62	4–5/6–7	0/0
6/3/2021	Crepuscular BUOW (Morning) Survey 3	5:15 AM – 7:40 AM	53/63	0–1/0–1	0/0
6/18/2021	Crepuscular BUOW (Morning) Survey 4	5:15 AM – 7:50 AM	56/62	0–1/0–1	0/0

RESULTS

No burrowing owl or owl sign was observed in the survey area.

Three potentially suitable burrows were recorded during the surveys, however, all were determined to be unoccupied (Figure 3). Representative photographs of the burrows are included in Attachment A.

California gnatcatcher (*Poliophtila californica*), federally-listed Threatened species and a California Species of Special Concern, was incidentally observed during the survey. California Natural Diversity Database (CNDDDB) forms for this species are included in Attachment C.

Psomas appreciates the opportunity to assist on this project. If you have any comments or questions, please contact Steve Norton at Steve.Norton@psomas.com or (714) 481-8037.

Sincerely,
PSOMAS



Steve Norton
 Senior Biologist/Project Manager, Resource Management

- Enclosures: Figures 1–3
 Attachment A – Site Photographs
 Attachment B – Burrows and Wildlife Observed
 Attachment C – CNDDDB Form

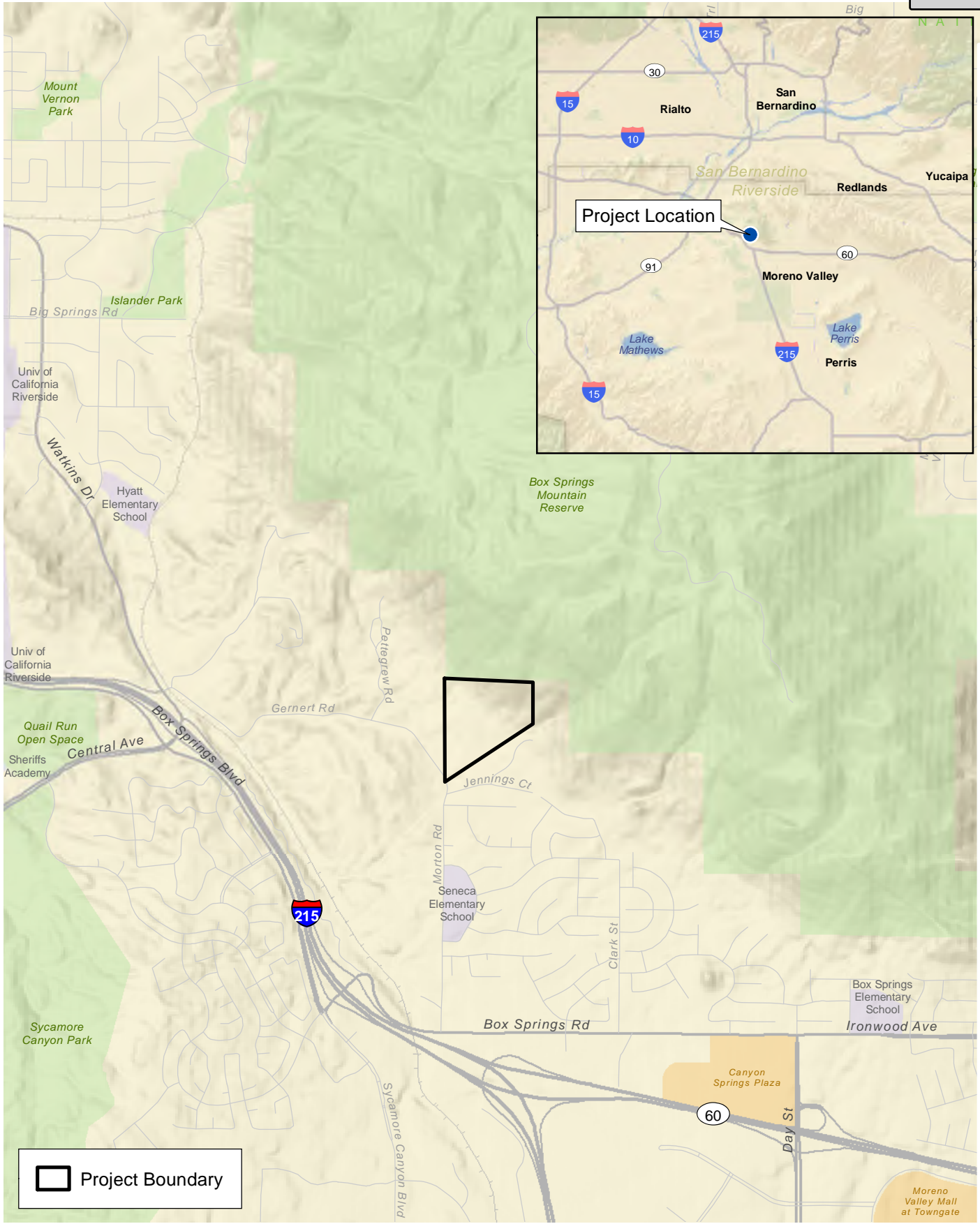
Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Mr. Ackerman
July 7, 2021
Page 5

REFERENCES

Dudek and Associates, Inc. (Dudek). 2003. Western Riverside County Multiple Species Habitat Conservation Plan (Prepared for the Riverside County Integrated Project). Encinitas, CA: Dudek. <http://www.wrc-rca.org/about-rca/multiple-species-habitat-conservation-plan/>.

Riverside, County of. 2006 (March 29). Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. Riverside, CA: the County.



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

 Project Boundary

Vicinity Map

Gateway Heights Project

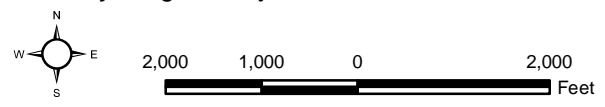
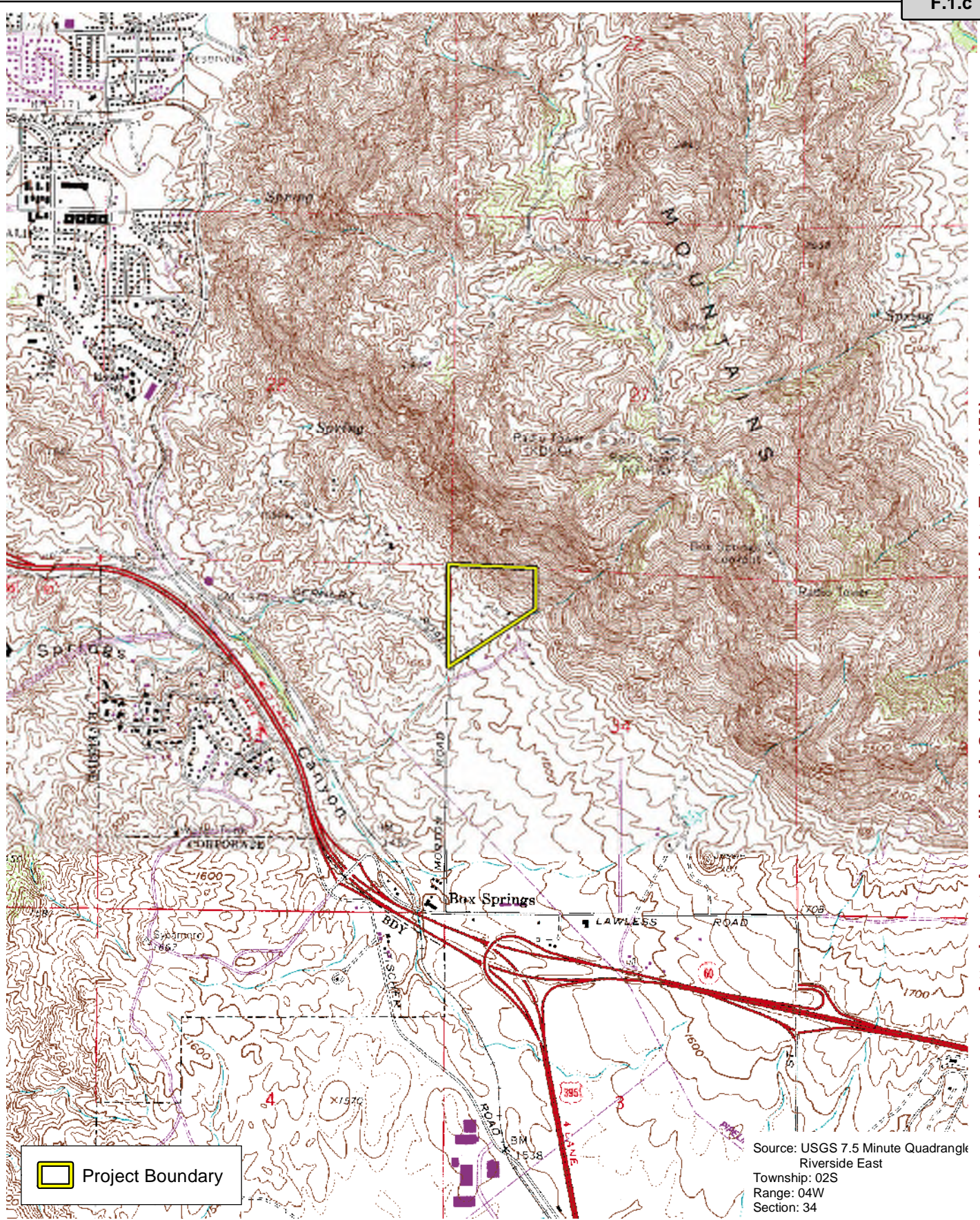


Figure 1



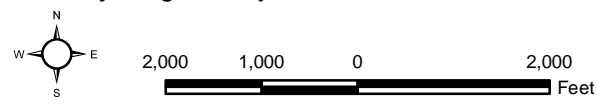
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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

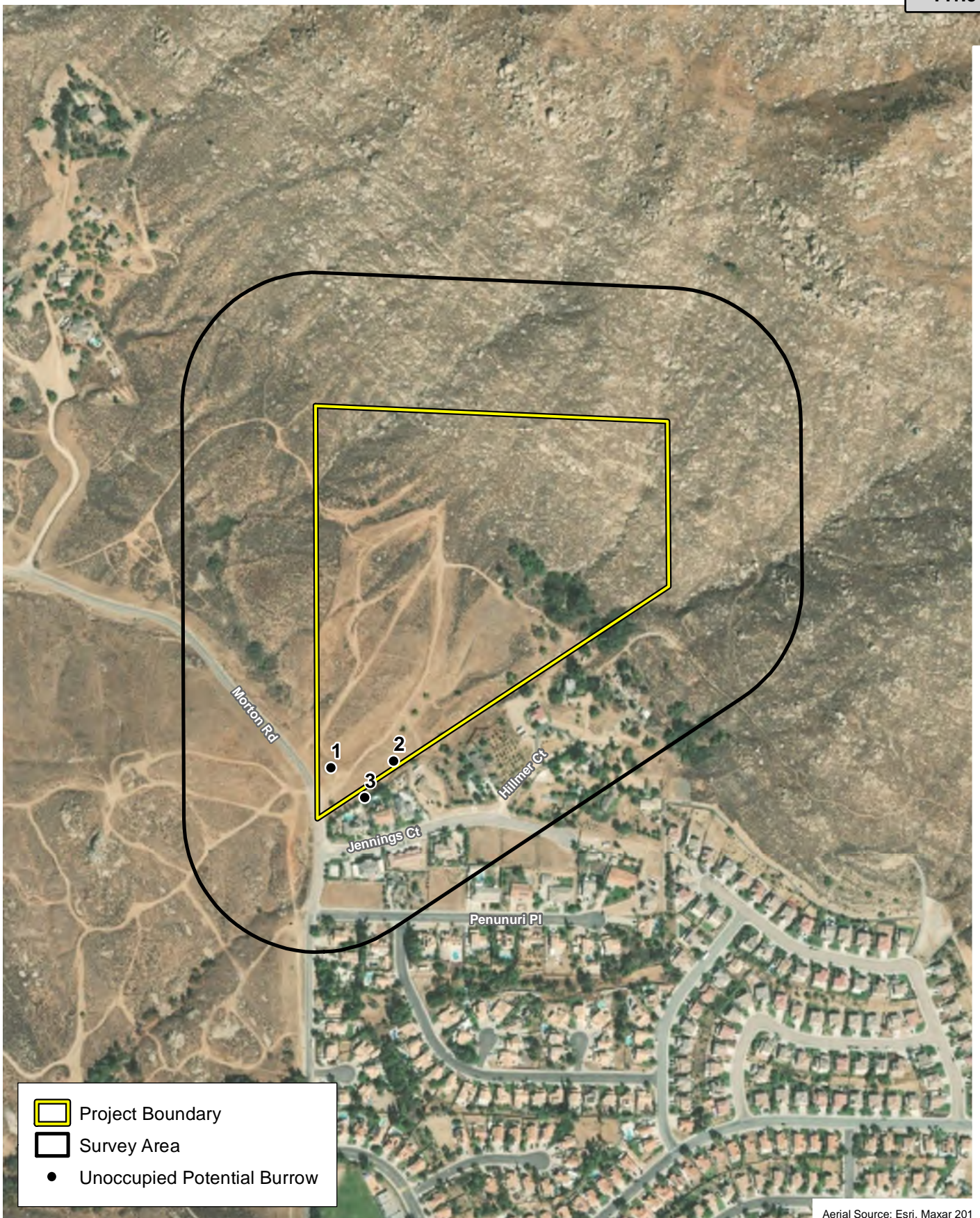
Topographic Map
Gateway Heights Project

Figure 2



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Survey Area

Gateway Heights Project

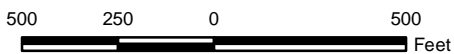


Figure 3



(Rev: 07/07/2021 MDM) R:\Projects\3ZHE\3ZHE010100\Gra

ATTACHMENT A
SITE PHOTOGRAPHS



Photo of unoccupied potentially suitable burrow complex (Burrow 1) located onsite.



Up-close photo of suitable entrance to unoccupied Burrow 1.

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Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

Site Photographs

Gateway Heights Project

Attachment A-1





Photo of unoccupied potentially suitable burrow complex (Burrow 2) located onsite. Multiple entrances into the rocky outcrop.



Photo of the unoccupied potentially suitable Burrow 3 located in the survey buffer (offsite). Only one entrance observed.

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Site Photographs

Gateway Heights Project

Attachment A-2



ATTACHMENT B
BURROWS AND WILDLIFE OBSERVED

**TABLE B-1
BURROW DETAILS**

Burrow ID	No. of Entrances	Easting	Northing	Burrow Dimensions (Width [in] x Height [in] x Length [in])	General Location	Notes
1	+10	33.957311	-117.296287	6 x 6 x 12 to 8 x 10 x 14	Onsite	Dirt mound with many newly dug California ground squirrel burrows provides potential burrows. However, the ground squirrel burrow complex is actively occupied by the squirrels. Burrowing owls would not be able to occupy unless squirrels vacated the complex.
2	4	33.957386	-117.295510	4 x 6 x 10 to 10 x 10 x 18	Onsite	Rocky outcrop with newly dug California ground squirrel burrows provides potential burrows. However, the ground squirrel burrow complex is actively occupied by the squirrels. Burrowing owls would not be able to occupy unless squirrels vacated the complex.
3	1	33.957008	-117.295866	10 x 8 x 18	Offsite within buffer	Water draining from backyard of private property has created a channel under a cinderblock wall creating a potential burrow.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

**TABLE B-2
WILDLIFE OBSERVED DURING SURVEYS**

Species	
Scientific Name	Common Name
LIZARDS	
PHRYNOSOMATIDAE - SPINY LIZARD FAMILY	
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Uta stansburiana</i>	common side-blotched lizard
TEIIDAE - WHIPTAIL LIZARD FAMILY	
<i>Aspidoscelis tigris</i>	western whiptail
BIRDS	
ODONTOPHORIDAE – NEW WORLD QUAILS	
<i>Callipepla californica</i>	California Quail
COLUMBIDAE - PIGEON AND DOVE FAMILY	
<i>Columba livia</i> *	rock pigeon*
<i>Streptopelia decaocto</i> *	Eurasian collared-dove*
<i>Zenaida macroura</i>	mourning dove
TROCHILIDAE - HUMMINGBIRD FAMILY	
<i>Calypte anna</i>	Anna's hummingbird
<i>Selasphorus sasin</i>	Allen's hummingbird
CHARADRIIDAE - PLOVER FAMILY	
<i>Charadrius vociferus</i>	killdeer
CATHARTIDAE - NEW WORLD VULTURE FAMILY	
<i>Cathartes aura</i>	turkey vulture
ACCIPITRIDAE - HAWK FAMILY	
<i>Circus cyaneus</i>	northern harrier
<i>Buteo jamaicensis</i>	red-tailed hawk
FALCONIDAE - FALCON FAMILY	
<i>Falco sparverius</i>	American kestrel
TYRANNIDAE - TYRANT FLYCATCHER FAMILY	
<i>Sayornis nigricans</i>	black phoebe
<i>Sayornis saya</i>	Say's phoebe
<i>Myiarchus cinerascens</i>	ash-throated flycatcher
<i>Tyrannus vociferans</i>	Cassin's kingbird
CORVIDAE - JAY AND CROW FAMILY	
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven
AEGITHALIDAE - BUSHTIT FAMILY	
<i>Psaltriparus minimus</i>	bushtit
TROGLODYTIDAE - WREN FAMILY	
<i>Salpinctes obsoletus</i>	rock wren
<i>Catherpes mexicanus</i>	canyon wren
<i>Troglodytes aedon</i>	house wren
POLIOPTILIDAE - GNATCATCHER FAMILY	
<i>Polioptila californica</i>	California gnatcatcher
SYLVIIDAE - SILVIID WARBLERS FAMILY	
<i>Chamaea fasciata</i>	wrentit

**TABLE B-2
WILDLIFE OBSERVED DURING SURVEYS**

Species	
Scientific Name	Common Name
TURDIDAE - THRUSH FAMILY	
<i>Sialia mexicana</i>	western bluebird
MIMIDAE - MOCKINGBIRD AND THRASHER FAMILY	
<i>Toxostoma redivivum</i>	California thrasher
<i>Mimus polyglottos</i>	northern mockingbird
STURNIDAE - STARLING FAMILY	
<i>Sturnus vulgaris</i> *	European starling*
PASSERIDAE - OLD WORLD SPARROW FAMILY	
<i>Passer domesticus</i> *	house sparrow*
FRINGILLIDAE - FINCH FAMILY	
<i>Haemorhous mexicanus</i>	house finch
<i>Spinus psaltria</i>	lesser goldfinch
PASSERELLIDAE - NEW WORLD SPARROW FAMILY	
<i>Aimophila ruficeps</i>	rufous-crowned sparrow
<i>Melospiza crissalis</i>	California towhee
<i>Artemisospiza belli</i>	Bell's sparrow
<i>Melospiza melodia</i>	song sparrow
<i>Zonotrichia leucophrys</i>	white-crowned sparrow
ICTERIDAE - BLACKBIRDS AND ORIOLES	
<i>Icterus bullockii</i>	Bullock's oriole
PARULIDAE - WARBLER FAMILY	
<i>Setophaga townsendi</i>	Townsend's warbler
MAMMALS	
SCIURIDAE - SQUIRREL FAMILY	
<i>Otospermophilus beecheyi</i>	California ground squirrel
LEPORIDAE - HARE AND RABBIT FAMILY	
<i>Sylvilagus audubonii</i>	desert cottontail
CANIDAE - CANID FAMILY	
<i>Canis latrans</i>	Coyote (scat)
* non-native species	

ATTACHMENT C
CALIFORNIA NATURAL DIVERSITY DATABASE FORM

CNDDDB Online Field Survey Form Report



California Natural Diversity Database
 Department of Fish and Wildlife
 1416 9th Street, Suite 1266
 Sacramento, CA 95814
 Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/



Source code MAC21F0002
 Quad code 3311783
 Occ. no. _____
 EO index no. _____
 Map index no. _____

This data has been reported to the CNDDDB, but may not have been evaluated by the CNDDDB staff

Scientific name: *Polioptila californica californica*

Common name: coastal California gnatcatcher

Date of field work (mm-dd-yyyy): 06-18-2021

Comment about field work date(s): Field work was conducted on four dates: 03/31/21, 05/13/21, 06/3/21, and 06/18/21

OBSERVER INFORMATION

Observer: Cristhian Mace

Affiliation: Psomas

Address: 400 E California Blvd 5, Pasadena, CA 91106

Email: cristhian.mace@psomas.com

Phone: (310) 848-7714

Other observers:

DETERMINATION

Keyed in:

Compared w/ specimen at:

Compared w/ image in:

By another person: Steve Norton

Other:

Identification explanation: The individual was identified as a male California gnatcatcher due to the presence of a black cap and black tail that was narrowly edged white on the body. The male was singing the typical "mew" call associated with the species.

Identification confidence: Very confident

Species found: Yes If not found, why not?

Level of survey effort: The gnatcatcher was observed as the biologist was walking transects that were 100 feet apart through the project site as part of a protocol burrowing owl survey.

Total number of individuals: 1

Collection?

Collection number:

Museum/Herbarium:

ANIMAL INFORMATION

How was the detection made? Heard singing then seen

Number detected in each age class:

1

adults

juveniles

larvae

egg mass

unknown

Age class comment:

Bird site use:

- Nesting
 Rookery
 Nesting colony
 Burrow site
 Lek
 Non-breeding (over-wintering)
 Communal roost
 Other

Site use description: A non-breeding male was observed foraging and singing throughout the area.

What was the observed behavior? Foraging and singing

Describe any evidence of reproduction: No evidence of reproduction was observed. The male did not display any nesting behaviors and no female or other individuals were observed within the general vicinity.

SITE INFORMATION

Habitat description: Coastal sage scrub habitat dominated by Encelia sp. and Eriogonum fasciculatum, with Salvia mellifera and Sambucus nigra.

Slope: 15-20%

Land owner/manager: Private

Aspect: West

Site condition + population viability: Fair

Immediate & surrounding land use: Open space and residential

Visible disturbances: Dirt roads, trash on site, evidence of grading

Threats: Off-highway vehicles were observed accessing the site. The area is scheduled for residential development.

General comments:

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
	Riverside	Riverside East	1664	33.96055	-117.29577	472673	3757822	11
1	Public Land Survey	Feature Comment						
	S T02S R04W 34							

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

The mapped feature is accurate within: [5 m](#)

Source of mapped feature: [GSP](#)

Mapping notes:

Location/directions comments:

Attachment(s):

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

October 13, 2022

11675

Shizao Zheng
1378 West Zhorgshan Road
Ningbo City, Zhejiang Province
China

Subject: Determination of Biologically Equivalent or Superior Preservation Report for the Gateway Heights Project, Moreno Valley, California

Dear Shizao Zheng:

In compliance with Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), a determination of biologically equivalent or superior preservation analysis is required by projects that will impact on-site riparian/riverine resources, if avoidance of these resources is not feasible (County of Riverside 2003). This determination of biologically equivalent or superior preservation letter report serves to provide the City of Moreno Valley (City) the full scope of construction and operation activities for the Gateway Heights Project (project), as well as demonstrate that the project design and proposed mitigation measures address impacts in a manner that is equivalent or superior as compared to leaving the site undeveloped. A full review of the affected resources is summarized below and is provided in the jurisdictional delineation report (Dudek 2021a) and biological resources report (Dudek 2021b), both prepared by Dudek.

1 Introduction

1.1 Project Area

The 40.1-acre study area is comprised of Assessor's Parcel Numbers 256-150-001 and 256-040-009, as well as rights-of-way, and is located north of Jennings Court and east of Morton Road in Riverside County (Figure 1, Project Location; figures can be found in Attachment A, Figures). The project site occurs within U.S. Geological Survey 7.5-minute Riverside East quadrangle map, Section 34 of Township 2 South, Range 4 West. Specifically, the approximate center of the property is located at longitude 117°17'39.77" W and latitude 33°57'34.95" N.

1.2 Project Description

The proposed project includes the residential development of 108 detached condominium units, parking, open space, utility lines, fuel modification zones, and storm drain lines. The project also includes an undercrossing beneath Morton Road. The collection system will begin on the east side of Morton Road and consist of a concrete lined drop in the channel bottom and concrete headwall structure to result in no increase to water surface elevation. As a result of negotiations with adjacent landowners, two alternatives for the outlet structure are proposed. In Alternative 1, the outlet structure will cross Morton Road directly across the street from the proposed

TO: SHIZAO ZHENG
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Project into an existing channel. (Figure 2A, Alternative 1 Site Plan) In Alternative 2, the outfall structure will travel south along Morton Road for approximately 170 feet before depositing into an existing channel on the west side of Morton Road south of its intersection with Jennings Court (Figure 2B, Alternative 2 Site Plan). The headwall and concrete spillway will extend for approximately 40 feet. To aid in reducing downstream erosion, a rip rap apron will extend for an additional 40 feet.

1.3 Existing Conditions

1.3.1 Site Description

The project site is characterized as open, vacant lands situated at the southwestern foothills of Box Springs Mountain. Based on aerial imagery (Google Earth 2021), the central and southern portions of the site have been frequently disced, as recently as August 2021. This is presumed to have been intended for weed abatement and fire prevention. Discing has been conducted historically as a part of routine property management and will be halted after project construction. Any additional fuel modification will only occur within identified fuel modification zones within the property boundary. Elevations range from approximately 1,600 to 2,200 feet above mean sea level. The project site is surrounded by undeveloped land to the north, east, and west, with residential developments to the south. Numerous erosional features with deep incised banks occur throughout the study area and are the result of sheet flow off Box Springs Mountain. Numerous dirt roads bisect the project site and contain deep, eroded segments. Morton Road bisects the southwestern portion of the study area. Representative photographs of the project site are included in Attachment B, Site Photographs, in the biological resources letter report (Dudek 2021a).

Based on a review of historical topographic maps (Historic Aerials 2019), residences were built along a dirt access road in the northeastern portion of the project site sometime between 1942 and 1955. It is unclear when the residences were removed; however, the dirt road remains, along with eucalyptus trees, assumed to have been planted around the residences.

1.3.2 Vegetation Communities and Land Covers

Dudek Biologists Anna Cassady and Britney Strittmater conducted a general biological survey of the project site including a 50-foot buffer, collectively referred to as the study area, on February 22, 2019, from 6:40 a.m. to 12:30 p.m. Dudek Biologist Tracy Park conducted a biological survey of the study area associated with Alternative 2 on September 21, 2022, from 1:30 p.m. to 3:25 p.m. Natural vegetation communities were mapped in the field using the Vegetation Alliances of Western Riverside County (Klein and Evens 2006). Land cover types were described in accordance with Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). Three vegetation communities and two land cover types were documented within the study area: brittlebush scrub, California annual grassland, eucalyptus woodland, disturbed habitat, and urban/developed. Figure 3, Vegetation, illustrates the distribution of vegetation communities and land covers, and Table 1 provides a summary of each vegetation community and land cover’s extent within the study area.

Table 1. Vegetation Communities and Land Covers within the Study Area

Vegetation Community/Land Cover	Acreage
Vegetation Communities	

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Table 1. Vegetation Communities and Land Covers within the Study Area

Vegetation Community/Land Cover	Acreage
Brittlebush Alliance	22.5
California Annual Grassland Alliance	11.0
Eucalyptus Alliance	1.6
Non-Natural Land Covers	
Disturbed Habitat	3.7
Urban/Developed	1.3
Total*	40.1

* Acreage may not total due to rounding.

1.3.2.1 Brittlebush Alliance

The brittlebush (*Encelia farinosa*) vegetation alliance is an open-to-intermittent shrub layer where brittlebush dominates or co-dominates at a low-to-moderate cover. The shrub layer often occurs in two separate strata: low shrubs at 0–2 meters tall and tall shrubs at 1–5 meters tall. A variety of native or non-native species may make up the herb layer (Klein and Evens 2006).

Within the study area, brittlebush is located in the northern portion of the study area at the base of Box Springs Mountain. This area contains numerous rocky outcrops. This community also occurs within the foothills in the central portion of the study area at slightly lower covers. This species was dominant in the shrub layer and included a lower cover of shrubs including California sagebrush (*Artemisia californica*) and black sage (*Salvia mellifera*). The herbaceous layer included various non-native grasses and a mixture of annual herbs such as redstem stork's bill (*Erodium cicutarium*) and shortfruit stork's bill (*Erodium brachycarpum*).

1.3.2.2 California Annual Grassland Alliance

As defined by Klein and Evens (2006), California annual grassland alliance is usually dominated by an open-to-continuous herbaceous layer of native or non-native species at 0–1 meters tall, where emergent shrubs occur infrequently at 0.5–5 meters tall. Herbaceous non-native grasses may include compact brome (*Bromus madritensis*), rippgut brome (*B. diandrus*), slender oat (*Avena barbata*), or common Mediterranean grass (*Schismus barbatus*), with other herbaceous species such as slender Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and redstem stork's bill.

California annual grassland occupies the central and southern portions of the study area. This vegetation community is comprised primarily of weedy species including, but not limited to, brome species (*Bromus* spp.), short-podded mustard (*Hirschfeldia incana*), Tournefort's mustard (*Brassica tournefortii*), common Mediterranean grass, common fiddleneck (*Amsinckia intermedia*), distant phacelia (*Phacelia distans*), shining pepperweed (*Lepidium nitidum*), Indian hedgemustard (*Sisymbrium orientale*), miniature lupine (*Lupinus bicolor*), winecup clarkia (*Clarkia purpurea*), California poppy (*Eschscholzia californica*), redstem stork's bill, and shortfruit stork's bill. Scattered emergent brittlebush is located along the northern portions of the community; however, due to the low cover in these areas, it did not warrant its own vegetation community.

1.3.2.3 Eucalyptus Alliance

The eucalyptus alliance is dominated by eucalyptus (*Eucalyptus* spp.) in the tree canopy, forming an open-to-interment tree layer at 10–15 meters tall. Typically, more than one eucalyptus species comprises this alliance. Other emergent trees may include coast live oak (*Quercus agrifolia*) or non-native trees and shrubs such as date palm (*Phoenix dactylifera*), peppertree (*Schinus* spp.), and tamarisk (*Tamarix* spp.) at lower covers.

Within the study area, this alliance occurs within the northeastern portion of the study area and is dominated by various eucalyptus species. Scattered giant reed (*Arundo donax*), poison oak (*Toxicodendron diversilobum*), and laurel sumac (*Malosma laurina*) occur within the understory at low covers. A couple scattered California sycamores (*Platanus racemosa*) and a single Fremont cottonwood (*Populus fremontii*) were present but did not create a continuous canopy or high enough cover to warrant their own community. This area occurs at a topographic change in the slope of the Box Springs Mountain that appears to allow the water table to be close enough to the surface to support this vegetation; however, there was no evidence of wetland hydrology and, as described, plant species consisted of scattered individuals that did not create a continuous canopy.

1.3.2.4 Urban/Developed

Although not recognized by the Vegetation Alliances of Western Riverside County, urban/developed is defined by Oberbauer et al. (2008) as areas that have been constructed on or disturbed so severely that native vegetation is no longer supported. Urban/developed lands includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials.

Urban/developed land takes the form of rural residential development that is located within the 50-foot buffer to the south and paved roads including Morton Road, Jennings Court, and Penunuri Place. A very small portion of Morton Road occurs within the project site.

1.3.2.5 Disturbed Habitat

The classification of disturbed habitat is due to the predominance of bare ground, non-native plant species, and other disturbance-tolerant plant species. Oberbauer et al. (2008) describes disturbed habitat as areas that have been physically disturbed by previous human activity and are no longer recognizable as a native or naturalized vegetation association, but that continue to retain a soil substrate. Typically, vegetation, if present, is nearly exclusively composed of non-native annual plant species.

Within the study area, disturbed land encompasses the dirt access roads occurring within the western portion of the project site and within the western and southwestern portions of the 50-foot buffer. While the disturbed land within the study area was composed primarily of bare ground, plant species observed within this land cover include redstem stork's bill and common Mediterranean grass.

2 Riparian/Riverine Impacts and Mitigation (per MSHCP Section 6.1.2)

2.1 Methods

Literature Review

The following available resources were reviewed to assess the potential for MSHCP riparian/riverine resources: aerial photographs (Google Earth 2019; Historic Aerials 2019); the U.S. Geological Survey 7.5-minute topographic quadrangle (USGS 2019); a Natural Resources Conservation Service soil map (USDA 2019b); U.S. Environmental Protection Agency Watershed Assessment, Tracking & Environmental Results System (EPA 2019), which includes the National Hydrography Dataset; and the National Wetland Inventory (USFWS 2019).

Field Delineation

On February 22, 2019, Dudek Biologists Anna Cassady and Britney Strittmater conducted a reconnaissance-level biological field survey and a delineation of jurisdictional waters including a 50-foot buffer of the project site. Dudek Biologist Tracy Park conducted a delineation of jurisdictional waters of the study area associated with Alternative 2 on September 21, 2022. Each survey was conducted on foot using visual and aural cues to document species incidence and site conditions.

The MSHCP defines riparian/riverine areas as “lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.” The MSHCP further clarifies those areas “demonstrating characteristics as described above which are artificially created are not included in these definitions” (County of Riverside 2003).

Given this definition, the maximum extent of streambed, as defined by the California Department of Fish and Wildlife, was used to aid in the delineation of MSHCP riparian/riverine resources. During the delineation of jurisdictional waters, Dudek delineated streambeds from the top of bank and/or the extent of the associated riparian vegetation.

2.2 Results/Impacts

2.2.1 Results

The study area contains two ephemeral drainages (Drainage 1 and Drainage 2) and two associated tributaries (Tributary 1 and Tributary 2) (Figure 4, MSHCP Riparian/Riverine). These features originate off site within the hills of Box Springs to the northeast and flow southwest through the project site. These features contained an inconsistent bed and bank, at times traversing the site via sheet flow. However, all features appeared to convey water towards Box Springs Canyon Wash, which has surface connection ultimately flowing to the Santa Ana River. Because these features convey water to downstream resources, they are considered riverine resources as defined by the MSHCP. There are approximately 0.29 acres of MSHCP riverine resources within the study area, as shown in Table 2.

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The study area contains two additional upland swales and five erosional features. These features originate from natural topography of Box Springs Mountain or as a result of dirt roads and trails that intersect the project site. Runoff conveyed by these features ultimately sheet flows and dissipates. These features do not rely on a fresh water source and do not convey flows to downstream riverine resources; therefore, these are not considered riverine resources as defined by the MSHCP.

The project site supports a few scattered individuals of California sycamore, Fremont cottonwood, and mulefat (*Baccharis salicifolia*) as observed during the February 2019 field visit. This riparian vegetation is small in its extent, lacks understory or closed-canopy features, lacks continuity with higher quality habitat, and is not contiguous; therefore, these scattered individuals are not considered a riparian resource as defined by the MSHCP.

Table 2. MSHCP Riverine Resources within the Project Site

Feature	Vegetation Community and/or Land Cover	MSHCP Riverine Resources (Acres/Linear Feet)	Total Acreage/ Linear Feet*
Drainage 1	Brittlebush (<i>Encelia farinosa</i>) Alliance	0.01/210	0.01/210
	California Annual Grassland Alliance	0.12/1,316	0.12/1,316
	Eucalyptus (<i>Eucalyptus</i> spp.) Alliance	0.01/188	0.01/188
<i>Drainage 1 MSHCP Riverine Total</i>			<i>0.15/1,714</i>
Tributary 1	Brittlebush Alliance	0.08/1,054	0.08/1,054
	California Annual Grassland Alliance	0.02/415	0.02/415
	Eucalyptus Alliance	0.01/250	0.01/250
<i>Tributary 1 MSHCP Riverine Total</i>			<i>0.11/1,720</i>
Drainage 2	Brittlebush Alliance	0.03/406	0.03/406
	Disturbed Habitat	<0.01/17	<0.01/17
<i>Drainage 2 MSHCP Riverine Total</i>			<i>0.03/423</i>
Tributary 2	Brittlebush Alliance	0.01/112	0.01/112
<i>Tributary 2 MSHCP Riverine Total</i>			<i>0.01/112</i>
Grand Total*			0.29/4,014

Notes: MSHCP = Multiple Species Habitat Conservation Plan

* Acreage may not total due to rounding.

2.2.2 Impacts

The project would result in direct impacts to riverine resources as defined by the MSHCP, as summarized in Table 3 and as depicted in Figure 5, Impacts. The project would avoid Drainage 2 and Tributary 2, as the edge of the development footprint is located approximately 20 feet away from the drainages at its nearest point and over 100 feet away at its furthest point. A deed restriction will be placed over the avoided features prior to issuance of a grading permit. The project component that is adjacent to the drainage is cut and fill slopes that are adjacent to the buildings and associated driveways. The distance and the nature of the project components near the drainages are both

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

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expected to reduce indirect effects to these features. Nevertheless, further information regarding how the project intends to avoid indirect impacts to these features is provided below in Section 2.3.

The project also includes a 100-foot fuel modification zone that will protect most of the development units. In areas where the fuel modification zone encroaches on MSHCP riverine features, the fuel modification zone would be modified to avoid direct impacts to these resources. The avoided Drainage 2 and Tributary 2 in the upper portion of the southeastern property line are comprised of large boulders and limited vegetation, thereby acting as a protective barrier without added maintenance needs (Dudek 2021c). The deed restriction will identify buffer areas for avoided riverine features where native vegetation removal is precluded and weed abatement and fuel modification (if needed) will be conducted using hand tools. This buffer will be up to 50 feet, as depicted in Figure 6, Avoided Riverine Buffers. In areas where the riverine features are adjacent to project features, such as is the case with Drainage 1, a smaller buffer (minimum 25 feet) will be used due to the construction of Street A, which will be located between 8 and 75 feet from Drainage 1¹. Despite the use of a smaller buffer, indirect impacts to Drainage 1 are not expected because Street A will act as a buffer for Drainage 1, as Street A and its associated landscaping will separate Drainage 1 from the residential community. In addition, associated runoff from Street A will be directed to a water quality basin that will filter the water before it leaves the site. Fuel modification activities will not occur between Street A and Drainage 1; all fuel modification activities associated nearby Drainage 1 are only proposed at the upstream reach, as is depicted in Figure 5, Impacts. As stated previously, fuel modification will avoid all riverine features and no native vegetation removal will occur adjacent to Drainage 1. Further information regarding how the project intends to avoid indirect impacts to these features is provided below in Section 2.3.

Impacts to Drainage 1 and Tributary 1 will occur from project development (Figure 5, Impacts). The project proposes to underground flows from Tributary 1 within a storm drain system that will intersect the project site before daylighting through a proposed outlet into Drainage 1. In existing condition, the terminus of Drainage 1 sheet flows south on Morton Road before flowing into Box Springs Canyon Wash. The proposed project intends to build a culvert that will contain the flows and prevent additional erosion to Morton Road. The terminus of Drainage 1 within the project site will be converted to a riprap-reinforced culvert that will convey flows beneath Morton Road and downstream to Box Springs Canyon Wash.

Table 3. Permanent Impacts to MSHCP Riverine Resources within the Project Site

Feature	Vegetation Community and/or Land Cover	Alternative 1 MSHCP Riverine Resources (Acres/Linear Feet) *	Alternative 2 MSHCP Riverine Resources (Acres/Linear Feet) *
Drainage 1	Brittlebush (<i>Encelia farinosa</i>) Alliance	—	—
	California Annual Grassland Alliance	0.01/38	0.01/76
	Eucalyptus (<i>Eucalyptus</i> spp.) Alliance	—	<0.01/24

¹ Note that the placement of Street A adjacent to Drainage 1 was imposed by the City fire marshal as a part of fire risk safety requirements.

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Table 3. Permanent Impacts to MSHCP Riverine Resources within the Project Site

Feature	Vegetation Community and/or Land Cover	Alternative 1 MSHCP Riverine Resources (Acres/Linear Feet) *	Alternative 2 MSHCP Riverine Resources (Acres/Linear Feet) *
	Disturbed Habitat	—	—
	Urban/Developed	—	—
<i>Drainage 1 MSHCP Riverine Total</i>		<i>0.01/38</i>	<i>0.01/100</i>
Tributary 1	Brittlebush Alliance	0.02/307	0.02/307
	California Annual Grassland Alliance	0.01/284	0.01/284
	Eucalyptus Alliance	<0.01/82	<0.01/82
<i>Tributary 1 MSHCP Riverine Total</i>		<i>0.03/674</i>	<i>0.03/674</i>
Drainage 2	Brittlebush Alliance	—	—
	Disturbed Habitat	—	—
<i>Drainage 2 MSHCP Riverine Total</i>		<i>—</i>	<i>—</i>
Tributary 2	Brittlebush Alliance	—	—
<i>Tributary 2 MSHCP Riverine Total</i>		<i>—</i>	<i>—</i>
Grand Total*		0.04/712	0.05/774

Notes: MSHCP = Multiple Species Habitat Conservation Plan

* Acreage may not total due to rounding.

2.3 Mitigation and Equivalency

Direct Effects

The proposed project will impact 0.04 acres (Alternative 1) or 0.05 acres (Alternative 2) of MSHCP riverine resources. In its existing condition, the riverine habitat within the project site supports groundwater recharge, sediment transport, and nutrient cycling. It also serves as a hydrological connection to downstream resources. Due to the narrow width and minimal vegetation within the features on site, value as wildlife habitat is limited; however, water conveyance through these features can contribute to wildlife habitat downstream in Box Springs Canyon Wash, particularly for the area plan's planning species: Bell's sage sparrow (*Artemisiospiza belli*), cactus wren (*Campylorhynchus brunneicapillus*), loggerhead shrike (*Lanius ludovicianus*), rufous-crowned sparrow (*Aimophila ruficeps*), and bobcat (*Lynx rufus*). Box Springs Canyon Wash is not conserved or described for conservation; however, it does connect to the Santa Ana River, approximately 4.5 miles downstream, presumably through a series of storm drains following the terminus of Box Springs Canyon Wash in Quail Run Park. Given that the proposed project design will retain the hydrological connectivity downstream through the use of detention basins and culverts, many of the hydrological functions and values, including sediment transport and contribution to downstream wildlife habitat, will remain following project implementation. Groundwater recharge and nutrient cycling will be slightly

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reduced due to the undergrounding of parts of Tributary 1 and the installation of riprap at the terminus of Drainage 1; however, some elements of these functions will remain following project implementation.

The Applicant proposes to compensate for impacts to MSHCP riverine areas by providing a 1:1 ratio of re-establishment credit at Riverpark Mitigation Bank, or at a 2:1 ratio of rehabilitation credits if re-establishment credits are not available. Re-establishment within Riverpark consists of the re-creation of alkali playa wetland habitat in areas where it once historically existed. Furthermore, re-establishment credits result in a return of hydrology, as well as plantings with riparian plant species. A purchase of credits at Riverpark is expected to create contiguous habitat that will provide wildlife habitat and support groundwater recharge, sediment transport, and nutrient cycling. Due to its location within the Plan Area, this habitat is expected to provide habitat for MSHCP planning species, including some of those listed in the Area Plan for this project. Given that implementation of the proposed project is expected to preserve hydrological functions and values, the reestablishment of both hydrology and species is expected to be equivalent preservation. Furthermore, the planting of riparian species serves as a functional lift as compared to what will be lost as a result of the project because the features lost as a result of the proposed project are unvegetated.

While the Applicant intends to purchase mitigation credits from Riverpark Mitigation Bank, if credits at Riverpark Mitigation Bank are not available prior to grading, the Applicant will compensate for impacts at a 2:1 ratio at off-site land within the MSHCP Plan Area for the purpose of in-perpetuity preservation, through the purchase of mitigation credits at an established off-site Mitigation Bank or In-lieu Fee Program, or as otherwise determined through coordination with the resource agencies. Mitigation proposed on land acquired for the purpose of in-perpetuity mitigation (that would not be part of an agency-approved Mitigation Bank or In-lieu Fee Program) shall include the preservation, rehabilitation, reestablishment, and/or creation of similar habitat within the Santa Ana Watershed pursuant to a Habitat Mitigation and Monitoring Plan. The Habitat Mitigation and Monitoring Plan shall be prepared prior to any impacts and it shall provide details as to the implementation of mitigation, maintenance, future monitoring, and management. The goal of the mitigation shall be to preserve, rehabilitate, reestablish, or create similar habitat with equal or greater function and value than the affected habitat. The Habitat Mitigation and Monitoring Plan would be provided to the following agencies for their review and approval, prior to any project ground disturbance: City, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and Regional Water Quality Control Board.

Indirect Effects

While the proposed project intends to avoid direct effects to all of Drainage 2 and Tributary 2, and partially avoid direct effects to Drainage 1 and Tributary 1, there is potential for indirect effects both from project construction and project operations. Indirect effects can consist of unintended runoff that can lead to toxicants or invasive species spreading downstream, noise and light effects that can negatively affect planning species, or edge effects that can lead to proliferation of non-native species at the interface of native and human-modified habitats.

To combat these indirect effects, the proposed project will implement the Urban/Wildlife Interface Guidelines. Each of the Urban/Wildlife Interface Guidelines are further discussed below.

- **Drainage/Toxics:** The proposed project includes the construction of a debris basin and water quality basin. Furthermore, the project will include the development of a stormwater pollution prevention plan. With implementation of these measures, the project would be consistent with these requirements of the MSHCP

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and no further actions are required. During project construction, the following best management practices will be implemented in order to avoid unintended drainage into avoided riverine features and other off-site areas:

- Construction limits shall be clearly flagged so that adjacent native vegetation and riverine features are avoided.
 - Silt fencing and straw waddles will be employed at the edge of construction boundaries, including cut and fill slopes, in order to prevent unintended runoff from draining off-site.
 - Construction work and operations areas shall be kept clean of debris, such as trash and construction materials. Fully covered trash receptacles that are animal-proof will be installed and used during construction to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Trash contained within the receptacles will be removed at least once a week from the proposed project site.
 - Staging and storage areas for spoils, equipment, materials, fuels, lubricants, and solvents shall be located within the designated impact area or adjacent developed areas, away from riverine features.
- **Lighting/Noise:** The project is located immediately north of existing residential development and adjacent to Morton Road. The project will incorporate a setback consisting of open space within the northern portion of the project site. Therefore, night lighting and noise will not impact existing or future MSHCP Conservation Areas and the project would be consistent with these requirements of the MSHCP.
 - **Barriers:** The project does not include fencing or other barriers that would impede wildlife. Furthermore, the project site does not function as a corridor for wildlife. Additionally, the area is not identified as a wildlife movement corridor by the MSHCP; therefore, the project would be consistent with these requirements of the MSHCP.
 - **Grading/Land Development:** No manufactured slopes extend within existing or planned Conservation Areas; therefore, the project would be consistent with these requirements of the MSHCP.
 - **Invasives:** Invasive species provided in MSHCP Table 6-2 are not to be used in development or restoration plan activities for projects adjacent to conservation areas. As described in MM-BIO-4 of the biological resources report (Dudek 2021b), the project shall not use invasive species as defined in the MSHCP Table 6-2 within its landscape plan. With implementation of this measure, the project would be consistent with this requirement of the MSHCP.
 - **Fuel Modification:** Weed abatement and fuel modification zones do not encroach into existing or planned Conservation Areas; therefore, the project would be consistent with these requirements of the MSHCP.

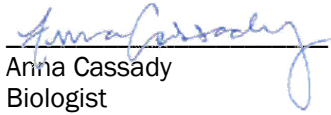
3 Conclusion

The proposed project will directly impact 0.04 acres (Alternative 1) or 0.05 acres (Alternative 2) of MSHCP riverine resources. The proposed mitigation of a purchase of re-establishment credits at a 1:1 ratio will provide biological equivalency for the resources lost. Furthermore, the implementation of the MSHCP Urban/Wildlife Interface Guidelines will avoid indirect impacts to MSHCP riverine resources.

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If you have any questions regarding this determination of biologically equivalent or superior preservation letter report, please feel free to contact me at acassady@dudek.com or at 951.300.1088.

Sincerely,



Anna Cassady
 Biologist

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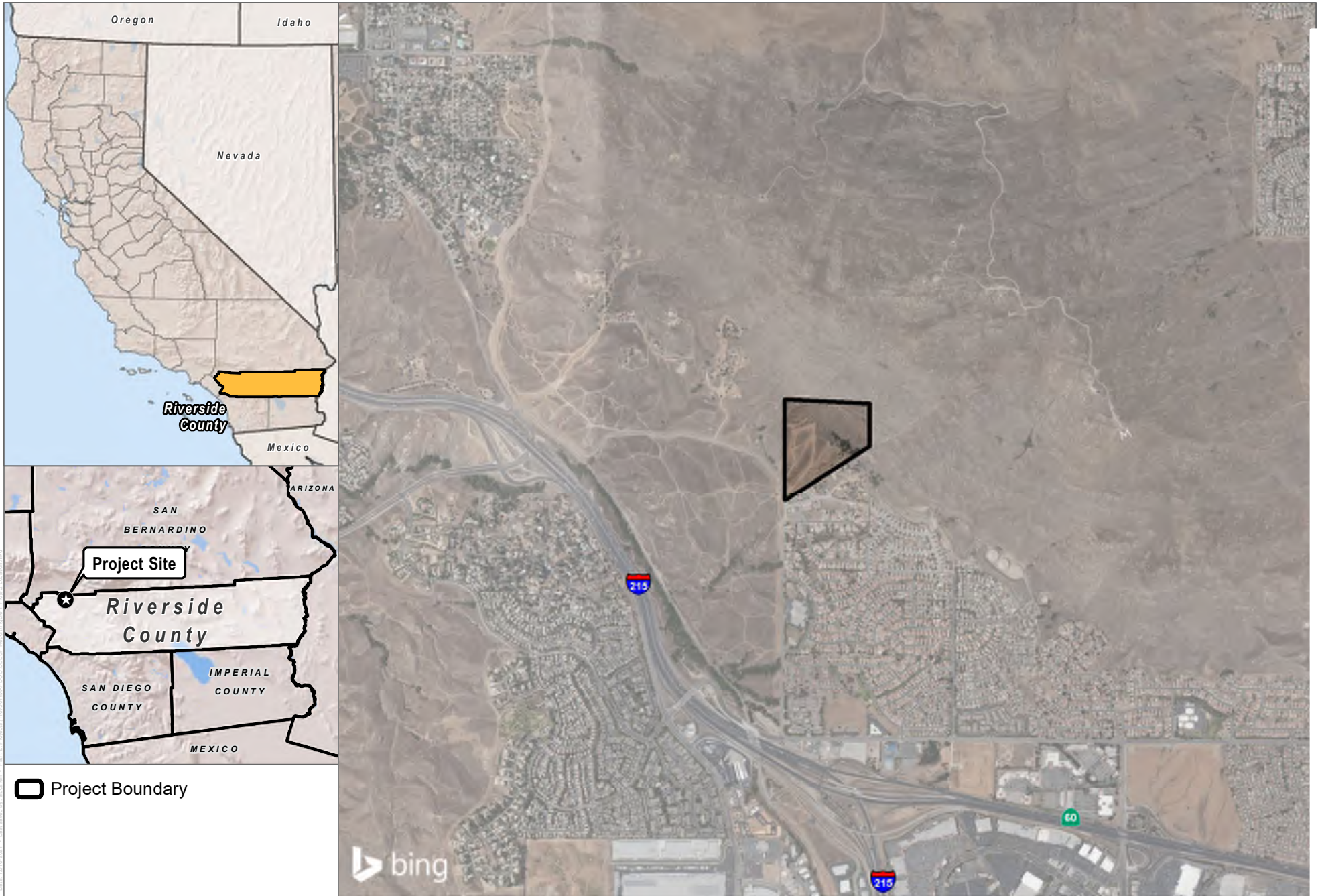
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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Attachment A

Figures

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



Attachment: Appendices A-G : Gateway Heights Tract 38459)

SOURCE: Bing Maps 2021



FIGURE 1
Project Location



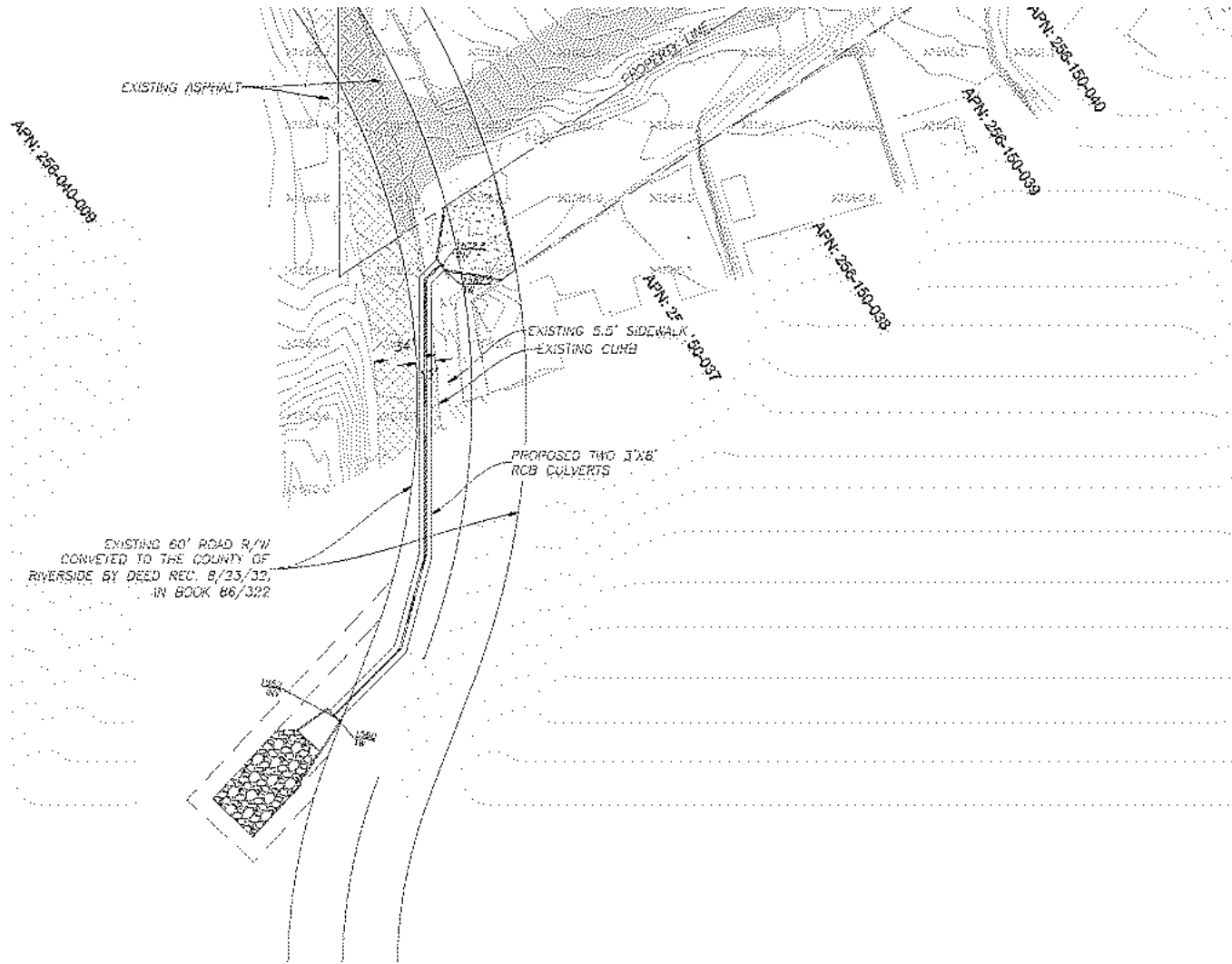
SOURCE: United Engineering Group 2022



FIGURE 2:
Alternative 1 Site Plan

Determination of Biologically Equivalent or Superior Preservation Report for the Gateway Heights Tract

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)




Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

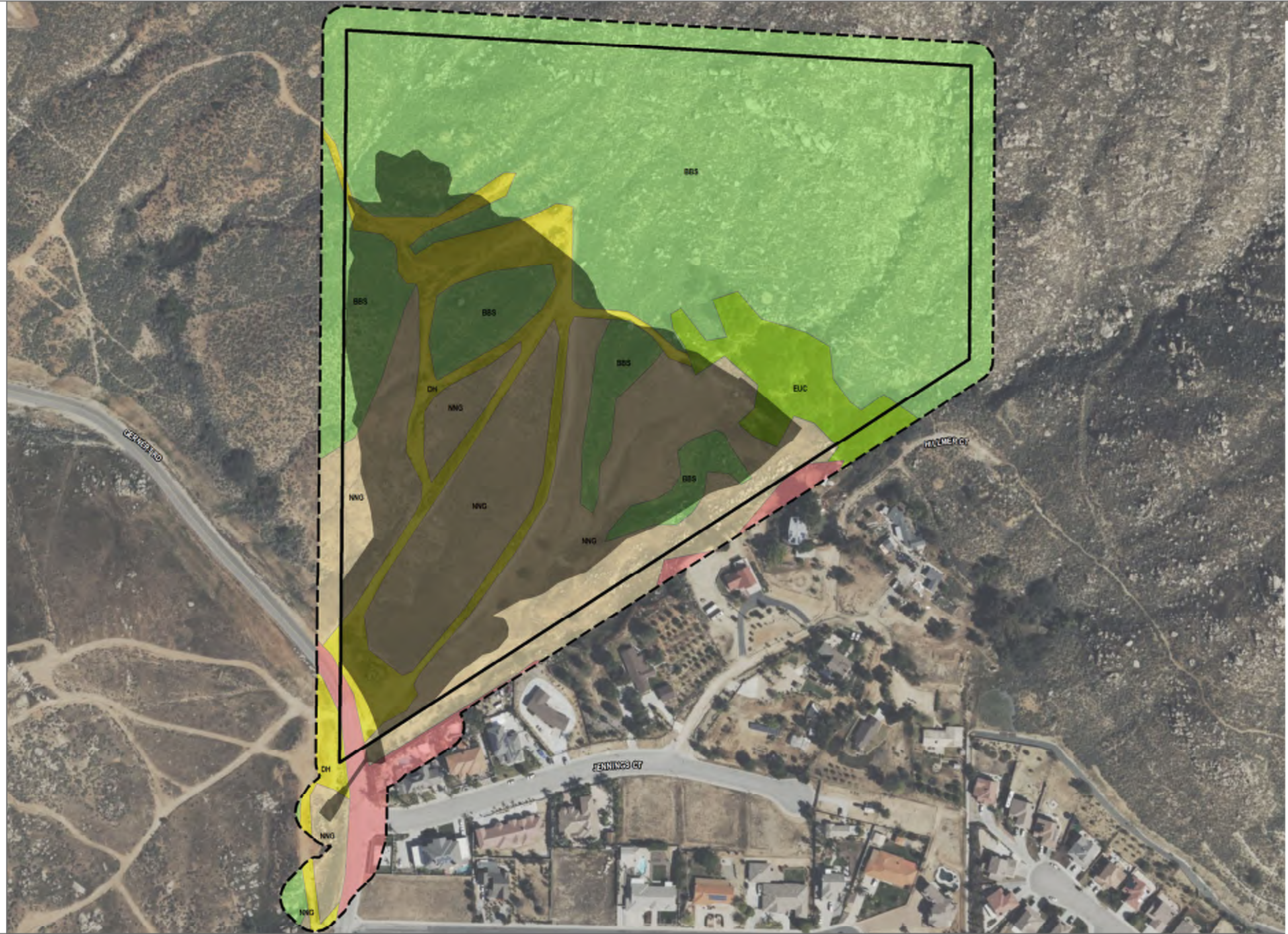
SOURCE: United Engineering Group 2022



FIGURE 2I
Alternative 2 Site Plan

Determination of Biologically Equivalent or Superior Preservation Report for the Gateway Heights Tract

-  Project Boundary
-  Project Footprint
-  50' Buffer of Project Areas
-  BBS - Brittlebush Alliance
-  EUC - Eucalyptus Alliance
-  NNG - California Annual Grassland Alliance
-  DH - Disturbed Habitat
-  DEV - Urban/Developed



SOURCE: Bing Maps 2022

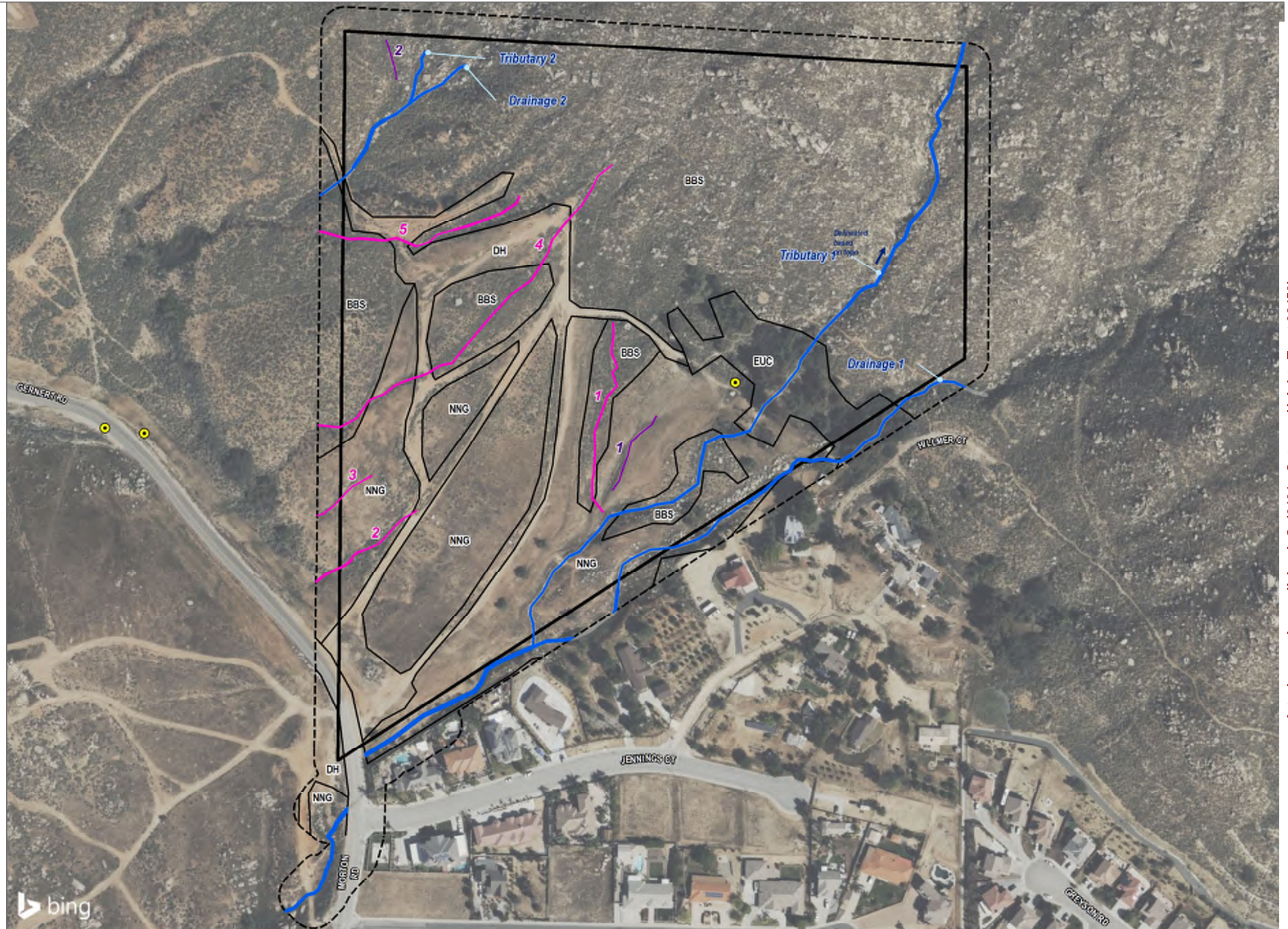


Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

FIGURE :
Vegetation

Determination of Biologically Equivalent or Superior Preservation Report for the Gateway Heights Tract 38459

- Project Boundary
- Study Area (50-foot Buffer)
- MSHCP Features**
- MSHCP Riverine Resource
- Non-MSHCP Features**
- Erosional Features (1-5)
- Upland Swales (1-2)
- Culvert
- Vegetation Communities and Land Cover Types
- BBS - Brittlebush Alliance
- EUC - Eucalyptus Alliance
- NNG - California Annual Grassland Alliance
- DH - Disturbed Habitat
- DEV - Urban/Developed



SOURCE: Bing Maps 2022

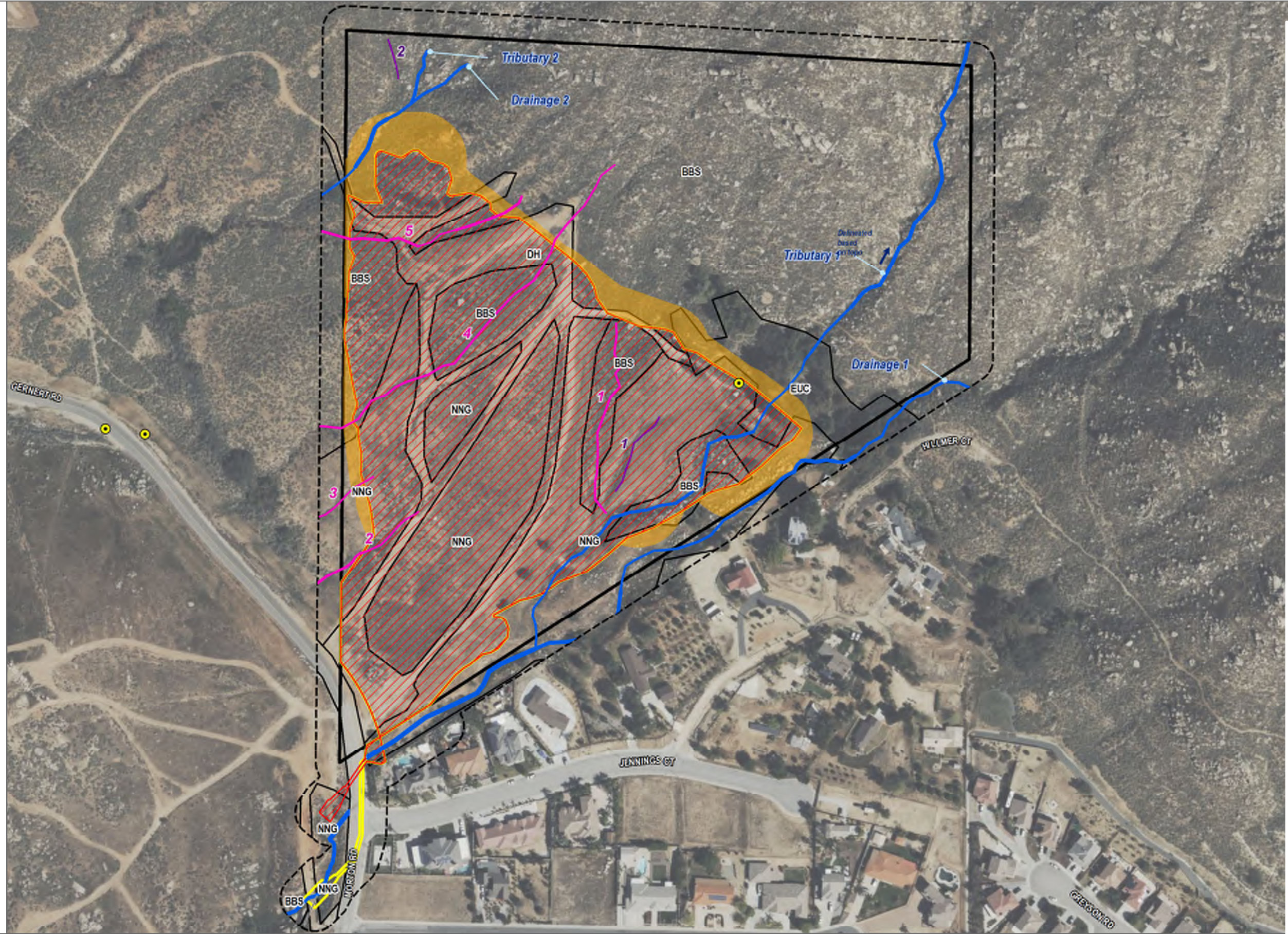


Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

FIGURE / MSHCP Riparian/Riverine

Determination of Biologically Equivalent or Superior Preservation Report for the

- Project Boundary
- Study Area (50-foot Buffer)
- Alternative 1 Impacts
- Alternative 2 Impacts
- Fuel Modification Permanent Impacts
- MSHCP Features**
- MSHCP Riverine Resource
- Non-MSHCP Features**
- Erosional Features (1-5)
- Upland Swales (1-2)
- Culvert
- Vegetation Communities and Land Cover Types
- BBS - Brittlebush Alliance
- EUC - Eucalyptus Alliance
- NNG - California Annual Grassland Alliance
- DH - Disturbed Habitat
- DEV - Urban/Developed












SOURCE: Bing Maps 2022

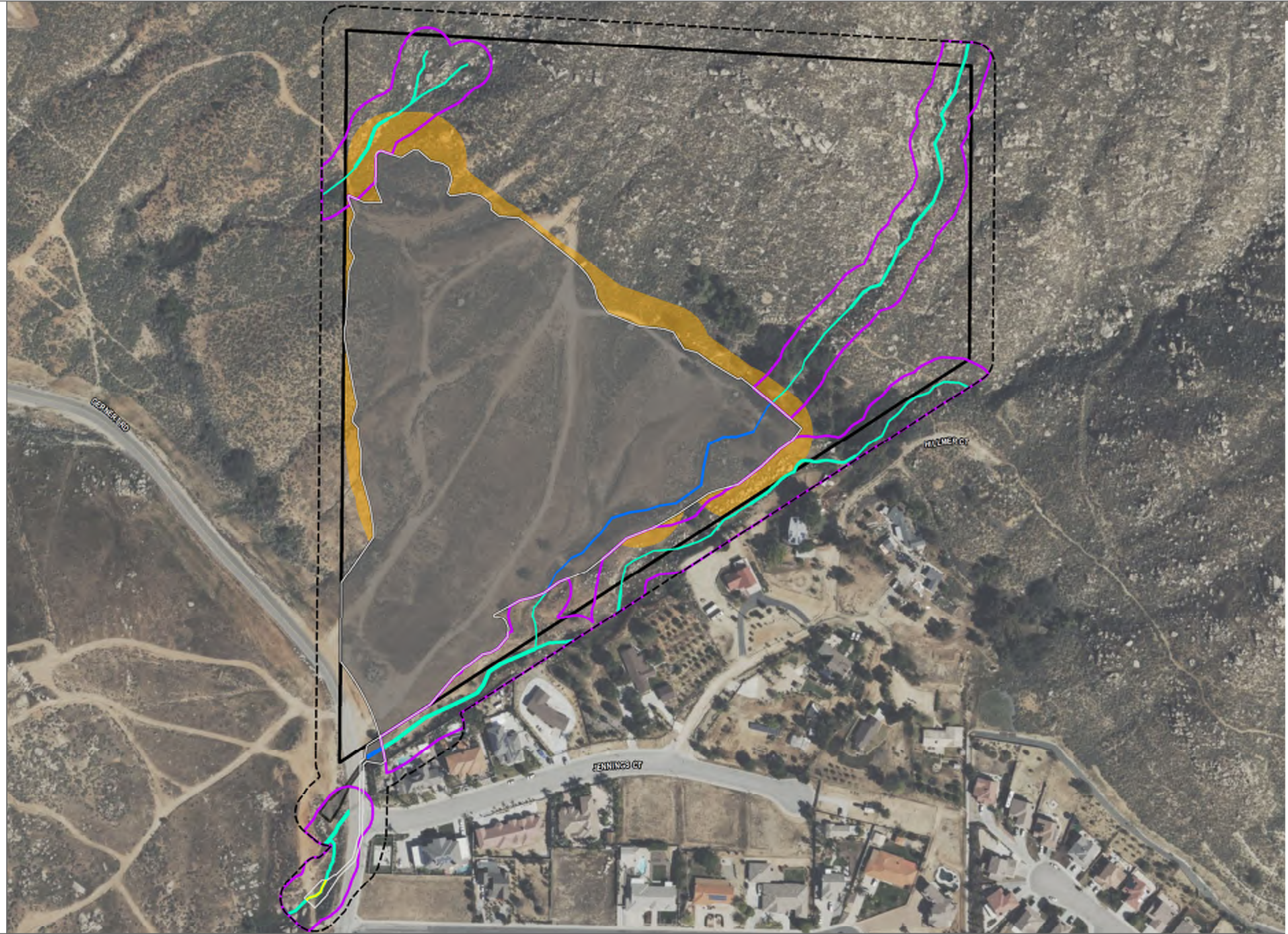


FIGURE 1
Impacts

Determination of Biologically Equivalent or Superior Preservation Report for the

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

-  Project Boundary
-  Jurisdictional Delineation Study Area (50-foot Buffer)
-  Project Footprint (Alternative 1)
-  Project Footprint (Alternative 2)
-  Fuel Modification Permanent Impacts
-  Riverine Buffer
-  MSHCP Riverine
-  Avoided MSHCP Riverine
-  Riverine Not Avoided in Alternative 2



SOURCE: Bing Maps 2022



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

FIGURE 1
Avoided Riverine Buffers

Determination of Biologically Equivalent or Superior Preservation Report for the

Appendix C
Cultural Reports



December 18, 2018

Shizao Zheng
1378 West Zhongshan Road
Ningbo City, Zhejiang Province
People's Republic of China

Re: Update to Previous Cultural Resources Studies
Tentative Tract Map No. 37557, Assessor's Parcel No. 256-150-001
City of Moreno Valley, Riverside County, California
CRM TECH Project #3411

Dear Mr. Zheng:

At your request, CRM TECH conducted a historical/archaeological resources records search, historical background research, and a field inspection on Assessor's Parcel No. 256-150-001 (Tentative Tract Map No. 37557, formerly Tentative Tract Map No. 33626) in the northwestern portion of the City of Moreno Valley, Riverside County, California. The subject property consists of approximately 36 acres of vacant land located to the north of the intersection of Morton Road and Jennings Court, in the northwest quarter of Section 34, T2S R4W, San Bernardino Baseline and Meridian (Figs. 1, 2). This letter presents a summary of the methods, results, and final conclusions of these research procedures.

Background

As you know, the project area was previously the subject of a standard Phase I cultural resources survey completed by CRM TECH in 2007 (Smallwood et al. 2007; see attachment). The scope of that study also included a records search, historical research, and a systematic field survey, along with consultation with Native American representatives. As a result of the survey, two archaeological sites, 33-015937 (CA-RIV-8274/H) and 33-015938 (CA-RIV-8275), and a prehistoric isolate, 33-015967, were identified and recorded within the project boundaries (*ibid.*:10-11). In order to evaluate their qualifications as "historical resources," as defined by the California Environmental Quality Act (CEQA), archaeological testing was recommended on the two sites (*ibid.*:14-15). The isolate was not considered a potential "historical resource" due to its lack of contextual integrity (*ibid.*:14).

Later that year, Sites 33-015937 and 33-015938 were treated with a testing program, which included surface collection of artifacts and the excavation of shovel test pits, standard archaeological units, and mechanical trenches (Sander and Daly 2007:10; see attachment). In the meantime, focused historical research was also completed on Site 33-015937 (Daly 2007a; 2007b). Throughout the excavations, no subsurface cultural remains were discovered (Sander and Daly 2007:15), and the historical research did not identify any significant persons or events associated with the sites, nor any other historical quality of distinction (Daly 2007a:n.p.; 2007b:2). Therefore, the two sites were determined not to meet CEQA definition of "historical resources" (Sander and Daly 2007:15).

Tel: 909 824 6400 Fax: 909 824 6405

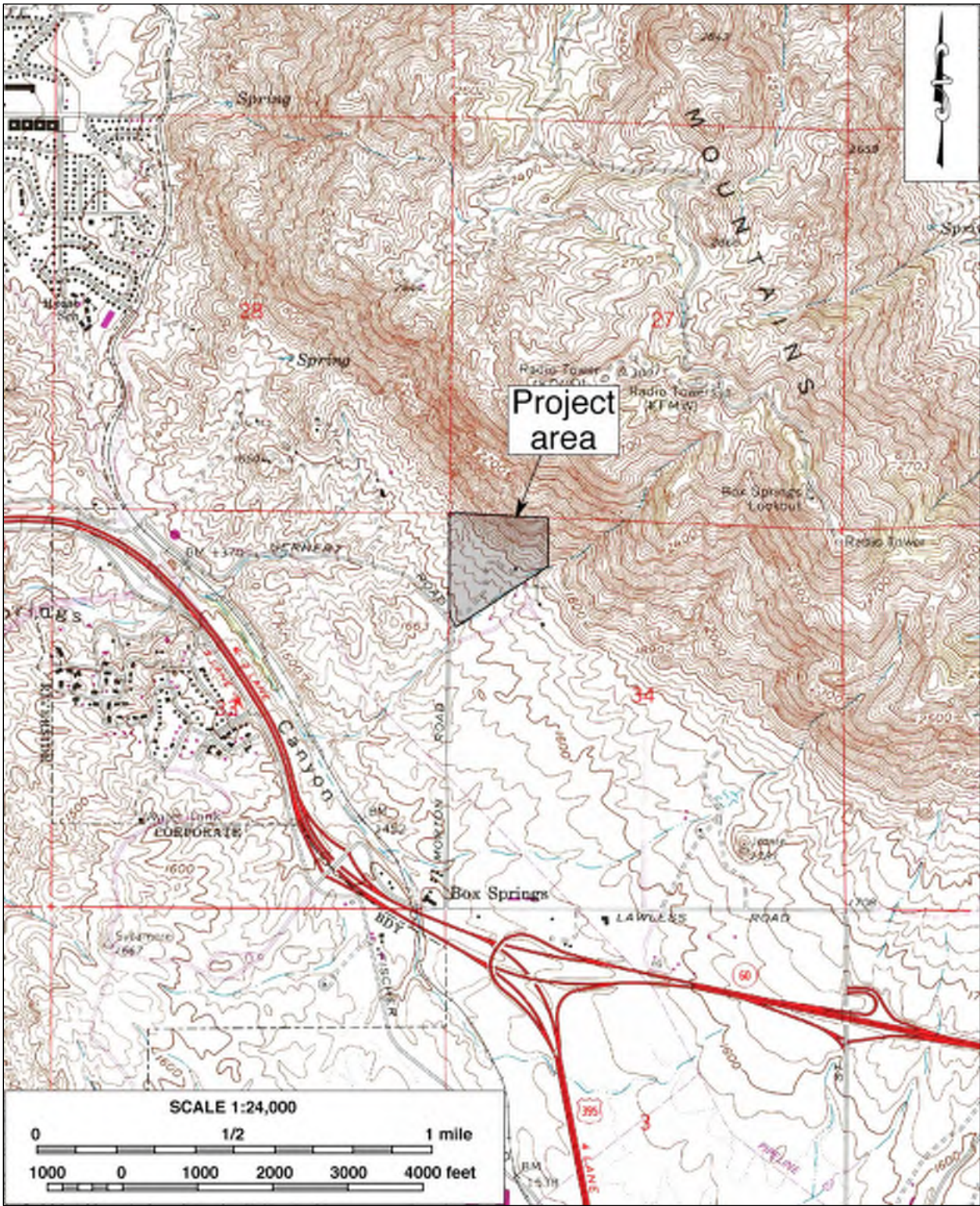


Figure 1. Location and configuration of the project area. (Based on USGS Riverside East, Calif., 7.5 quadrangle, 1980 edition)

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



Figure 2. Aerial image of the project area. (Based on Google Earth imagery)

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

However, at the conclusion of the testing program, archaeological monitoring was recommended for any ground-disturbing activities with 30 meters (100 feet) of the site boundaries (*ibid.*:16). Because the 2007 studies are now 11 years old, the research procedures implemented during this study are designed as an update to re-examine and confirm the findings.

Records Search

A standard one-mile-radius records search was conducted on November 14, 2018, by CRM TECH archaeologist Nina Gallardo, B.A., at the Eastern Information Center (EIC), University of Riverside, California. The results of the records search indicate that in addition to the survey and testing reports summarized above, another cultural resources survey also took place within the project boundaries in 2007 (Schmidt 2007). That survey was focused on the site of a wooden power pole that was slated to be replaced (#7264 in Fig. 3), and no cultural resources was identified in the vicinity (*ibid.*:2).

No other studies have occurred in the project area since 2007, according to EIC records, and Sites 33-015937 and 33-015938 and Isolate 33-015967 remain the only cultural resources recorded in the immediate vicinity. As stated above, all three of these known cultural resources were previously determined not to constitute “historic resources” under CEQA provisions. Since no new information has come to light that would necessitate a re-examination of the previous evaluation, Sites 33-015937 and 33-015938 and Isolate 33-015967 require no further consideration during this study.

Outside the project area but within the one-mile radius, EIC records show that as of today at least 35 other cultural resources studies have been completed on various tracts of land and linear features, compared to the 14 studies inventoried in 2007 (Smallwood et al. 2007:9). Meanwhile, eight additional historical/archaeological resources have been recorded into the California Historical Resources Inventory since 2007, bringing the total number of recorded cultural resources within the scope of the records search to 46, including Sites 33-015937 and 33-015938 and Isolate 33-015967. Other than these three, none of the localities was found in the immediate vicinity of the project area.

The vast majority of the recorded cultural resources were prehistoric—i.e., Native American—in origin, consisting predominantly of bedrock milling features but also including groundstone, chipped stone artifacts, and a rockshelter with midden soil. Seven sites and one isolate dated to the historic period and included buildings, a refuse scatter, a former military shooting range, and structural remains along a former Santa Fe Railway siding. Since none of these sites and isolates has any potential to be impacted by the proposed subdivision and development of the project area, they, too, require no further consideration.

Supplemental Historical Research

Historical background research for this study was conducted for the purpose of supplementing and updating the findings of the 2007 studies with information from sources that have become available since then, such as aerial photographs taken between 1966 and 2018, accessible at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software. As mentioned in the 2007 survey report, an apparent homestead was once located in the northeast portion of the project area, at the location of Site 33-015937 (Smallwood et al. 2007:11-12). The

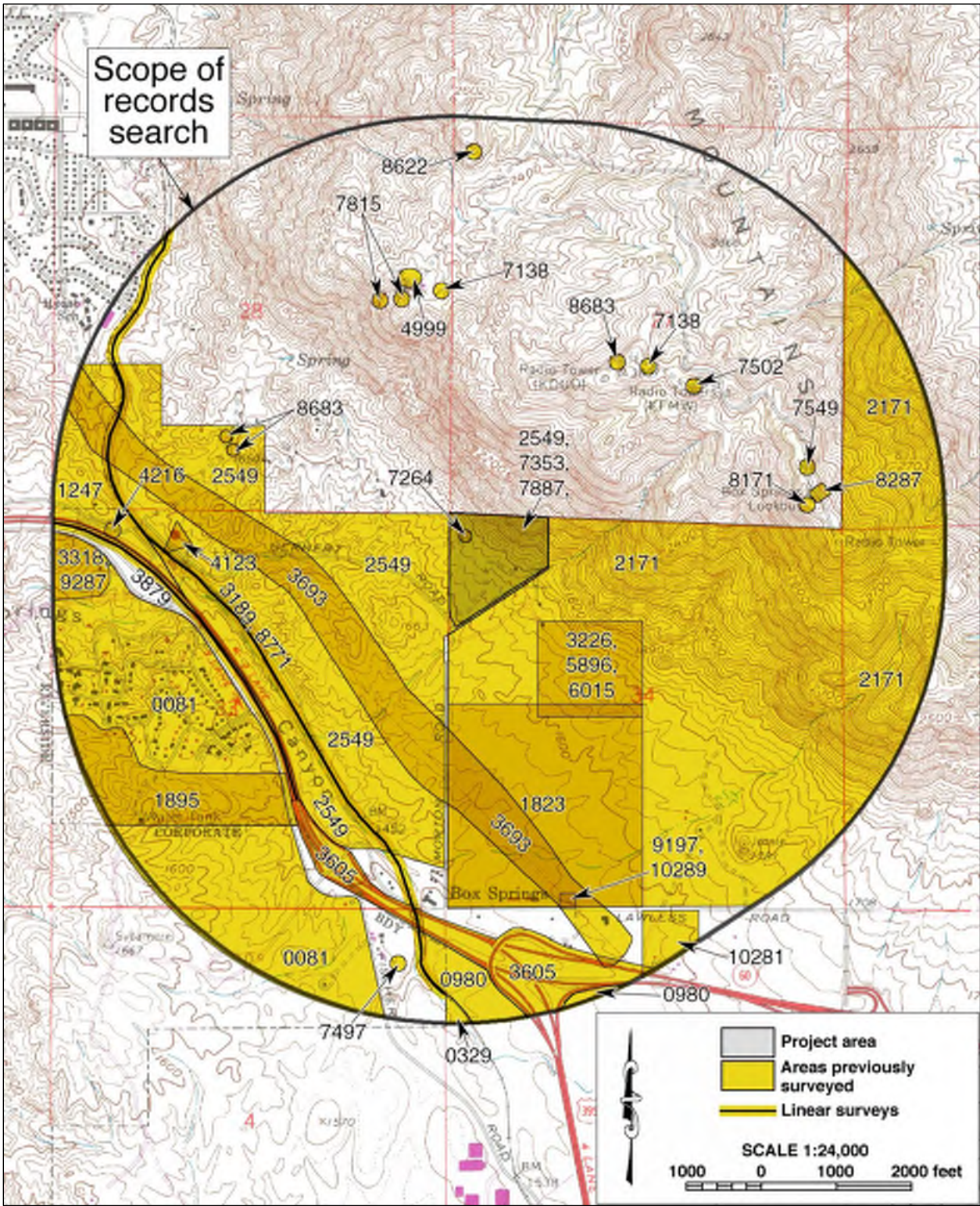


Figure 3. Previous cultural resources studies in the vicinity of the project area, listed by EIC file number. Locations of known historical/archaeological sites are not shown as a protective measure.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

aerial photographs confirmed the presence of at least one residence and several ancillary structures at that location during the 1960s-1970s (NETR Online 1966-1978). By 1994, all of the buildings and structures had been removed, and some grading or clearing had occurred in the project area for unknown purposes (NETR Online 1994; Google Earth 1994). Since then, the property has remained entirely undeveloped to the present time, with only occasional vegetation clearing and off-road vehicle activities evident (NETR Online 2002-2014; Google Earth 2002-2018).

Field Inspection

On November 21, 2018, CRM TECH field director/archaeologist Daniel Ballester conducted a “spot-check” field inspection of the project area. The archaeological fieldwork was focused primarily on the locations of the three previously recorded cultural resources in order to update observations made in 2007, and the rest of the project area was inspected along the southern and western perimeters for an overview of the current conditions of the property. Ground visibility ranged from poor (as low as 5%) where dense vegetation grows around several springs to excellent (essentially 100%) where all vegetation has been removed (Fig. 4). The field inspection reveals that features of Sites 33-015937 and 33-015938, such as the bedrock milling features and the structural remains, are still present today and are in a similar condition as in 2007, but the groundstone artifact at Isolate 33-015967 could not be located. No other potential cultural resources were encountered within or adjacent to the project boundaries during the field inspection.



Figure 3. Current condition of the project area. (Photograph taken November 21, 2018; view to the northeast)

Conclusion and Recommendations

Based on the research results outlined above, CRM TECH present the following recommendations to the City of Moreno Valley:

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

- No “historical resources,” as defined by CEQA, are present within or adjacent to the project area, and thus proposed project will have *No Impact* on any “historical resources.”
- In light of the possibility for additional cultural remains to be unearthed during earth-moving operations at or near Sites 33-015937 and 33-015938, the 2007 recommendation for archaeological monitoring within 30 meters (100 feet) of the site boundaries remains valid and appropriate.
- If any subsurface cultural materials are encountered during earth-moving operations elsewhere in the project area, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

Thank you for this opportunity to be of service. If you have any questions or need further information regarding this study, please do not hesitate to contact our office.

Sincerely,



Bai “Tom” Tang, M.A.
Principal, CRM TECH

Reference Cited:

Daly, Pamela

2007a Historic Resources Assessment Report: APN 256-150-001-4, Moreno Valley, California 92555. On file, Eastern Information Center, University of California, Riverside (#RI-07887, Appendix A; see attachment).

2007b Kincaid Development Project: Results of an Archaeological Test Program at CA-RIV-8274/H and CA-RIV-8275, Moreno Valley, Riverside County, California. Letter to the City of Moreno Valley, dated September 3. On file, Planning Division, Community Development Department, City of Moreno Valley (Case #PA05-0073; see attachment).

Google Earth

1994-2018 Aerial photographs of the project vicinity; taken in 1994, 2002-2006, 2008, 2009, 2011-2014, and 2016-2018. Available through the Google Earth software.

NETR Online

1966-2014 Aerial photographs of the project vicinity; taken in 1966, 1967, 1978, 1994, 2002, 2005, 2009, 2010, 2012, and 2014. <http://www.historicaerials.com>.

Sander, Jay K., and Pamela Daly

2007 Kincaid Development Project: Results of an Archaeological Test Program at CA-RIV-8274/H and CA-RIV-8275, Moreno Valley, Riverside County, California. On file, Eastern Information Center, University of California, Riverside (#RI-07887; see attachment).

Schmidt, James J.

2007 DWO 6077-4800; AI # 7-4801, -4802, -4807, -4809, AI # 6-4800, -4884, -4886, -4887; Various Circuits, Riverside County; Idyllwild, San Jacinto Peak, Lakeview, Riverside East, and Lake Elsinore Quadrangles. On file, Eastern Information Center, University of California, Riverside (#RI-07264).

Smallwood, Josh, Mariam Dahdul, Daniel Ballester, and Laura H. Shaker
2007 Historical/Archaeological Resources Survey Report: Tentative Tract Map No. 33626,
City of Moreno Valley, Riverside County, California. On file, Eastern Information Center,
University of California, Riverside (#RI-07357; see attachment).

ATTACHMENT

**2007 PHASE I CULTURAL RESOURCES SURVEY REPORT AND
PHASE II ARCHAEOLOGICAL TESTING REPORT**

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

received 6/11/2007
PAOS-0515
Confidential File was
Released

F.1.c

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

TENTATIVE TRACT MAP NO. 33626

**City of Moreno Valley
Riverside County, California**

For Submittal to:

City of Moreno Valley Planning Department
14177 Frederick St.
Moreno Valley, CA 92553

Prepared for:

Joe Kincaid
Kincaid Development Corporation
17611 Wood Road
Riverside, CA 92508

Prepared by:

CRM TECH
1016 East Coofey Drive, Suites A/B
Colton, CA 92324

Michael Hogan, Principal Investigator
Bai "Tom" Tang, Principal Investigator

May 30, 2007
CRM TECH Contract No. 2060

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Author(s): Josh Smallwood, Archaeologist/Report Writer
 Mariam Dahdul, Archaeologist/Report Writer
 Daniel Ballester, Archaeologist/Field Director
 Laura H. Shaker, Archaeologist/Native American Liaison

Consulting Firm: CRM TECH
 1016 East Cooley Drive, Suites A/B
 Colton, CA 92324
 (909) 824-6400

Date: May 30, 2007

Title: Historical/Archaeological Resources Survey Report: Tentative Tract
 Map No. 33626, City of Moreno Valley, Riverside County, California

For Submittal to: City of Moreno Valley Planning Department
 14177 Frederick St.
 Moreno Valley, CA 92553
 (951) 413-3000

Prepared for: Joe Kincaid
 Kincaid Development Corporation
 17611 Wood Road
 Riverside, CA 92508
 (775) 628-8951

USGS Quadrangle: Riverside East, Calif., 7.5' quadrangle; Section 34, T2S R4W, San Bernardino Base Meridian

Project Size: Approximately 36 acres

Cultural Resources: Sites CA-RIV-7284/H (33-15937) and CA-RIV-7285 (33-15938); isolate

Keywords: Moreno Valley area, Riverside County; Phase I survey; Assessor's Parcel No. 256-150-001; prehistoric bedrock milling features; groundstone artifacts; historic-period structural remains; historic-period refuse; Phase II study recommended

MANAGEMENT SUMMARY

In April and May, 2007, at the request of Kincaid Development Corporation, CRM TECH performed a cultural resources study on approximately 36 acres of vacant land in the northwestern portion of the City of Moreno Valley, Riverside County, California. The subject property of the study, Tentative Tract Map No. 33626, consists of what is currently Assessor's Parcel No. 256-150-001, located east of Gernert Road and north of Jennings Court, in the northwest quarter of Section 34, T2S R4W, San Bernardino Base Meridian. The study is part of the environmental review process for the proposed subdivision of the property for residential development. The City of Moreno Valley, as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

The purpose of the study is to provide the City of Moreno Valley with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any historical/archaeological resources that may exist in or adjacent to the project area, as mandated by CEQA. In order to identify and evaluate such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, consulted with Native American representatives, and carried out an intensive-level field survey.

As a result of these procedures, two archaeological sites, CA-RIV-7284/H (33-15937) and CA-RIV-7285 (33-15938), and one prehistoric isolate were identified within the project boundaries. CA-RIV-7284/H consists of both prehistoric and historic-period components, including bedrock milling features, building foundations, a well, a cistern, and a refuse deposit. CA-RIV-7285 contains two bedrock milling features. The isolate is a hand-held grinding stone that appears to have been used as a mano and a pestle.

The isolate, by definition, does not qualify as a significant archaeological resource due to the lack of contextual integrity and its limited ability to contribute information to the study of prehistory. However, because the artifact is situated in a disked area near natural springs, there is a possibility that additional buried artifacts could be present. Therefore, the excavation of a few shovel test pits is recommended for this locality.

The significance of Sites CA-RIV-7284/H and -7285 cannot be properly evaluated without further archaeological investigations. Since both sites are located in an area that will be impacted by the proposed development project, CRM TECH recommends that an archaeological testing and evaluation program be implemented to determine the presence or absence of any subsurface cultural deposits, and thereby the significance of the sites. The testing and evaluation program should consist of, at a minimum, surface collection of artifacts, excavation of archaeological test pits and units, laboratory analysis of recovered artifacts, preparation of report presenting the findings, and permanent curation of artifacts at an appropriate facility. It should also include additional historical background research on the historic-period component of Site CA-RIV-7284/H. Further recommendations regarding the final treatment of the sites will be formulated and presented on the basis of the results of the testing and evaluation program.

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INTRODUCTION

In April and May, 2007, at the request of Kincaid Development Corporation, CRM TECH performed a cultural resources study on approximately 36 acres of vacant land in the northwestern portion of the City of Moreno Valley, Riverside County, California (Fig. 1). The subject property of the study, Tentative Tract Map No. 33626, consists of what is currently Assessor's Parcel No. 256-150-001, located east of Gernert Road and north of Jennings Court, in the northwest quarter of Section 34, T2S R4W, San Bernardino Base Meridian (Fig. 2). The study is part of the environmental review process for the proposed subdivision of the property for residential development. The City of Moreno Valley, as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.).

CRM TECH performed the present study to provide the City of Moreno Valley with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any historical/archaeological resources that may exist in or around the project area, as mandated by CEQA. In order to identify and evaluate such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, consulted with Native American representatives, and carried out an intensive-level field survey. The following report is a complete account of the methods, results, and final conclusion of the study.

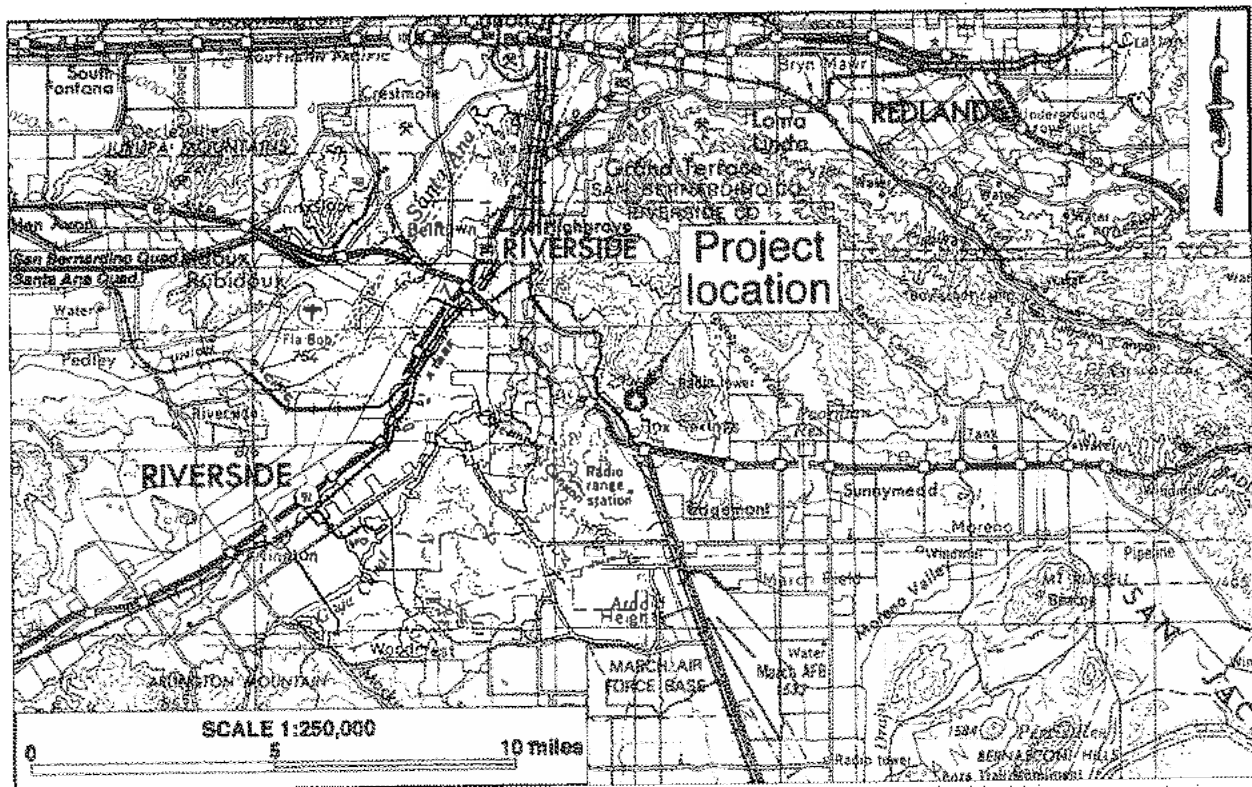


Figure 1. Project vicinity. (Based on USGS San Bernardino and Santa Ana, Calif., 1:250,000 quadrangles [USGS 1969; 1979].)

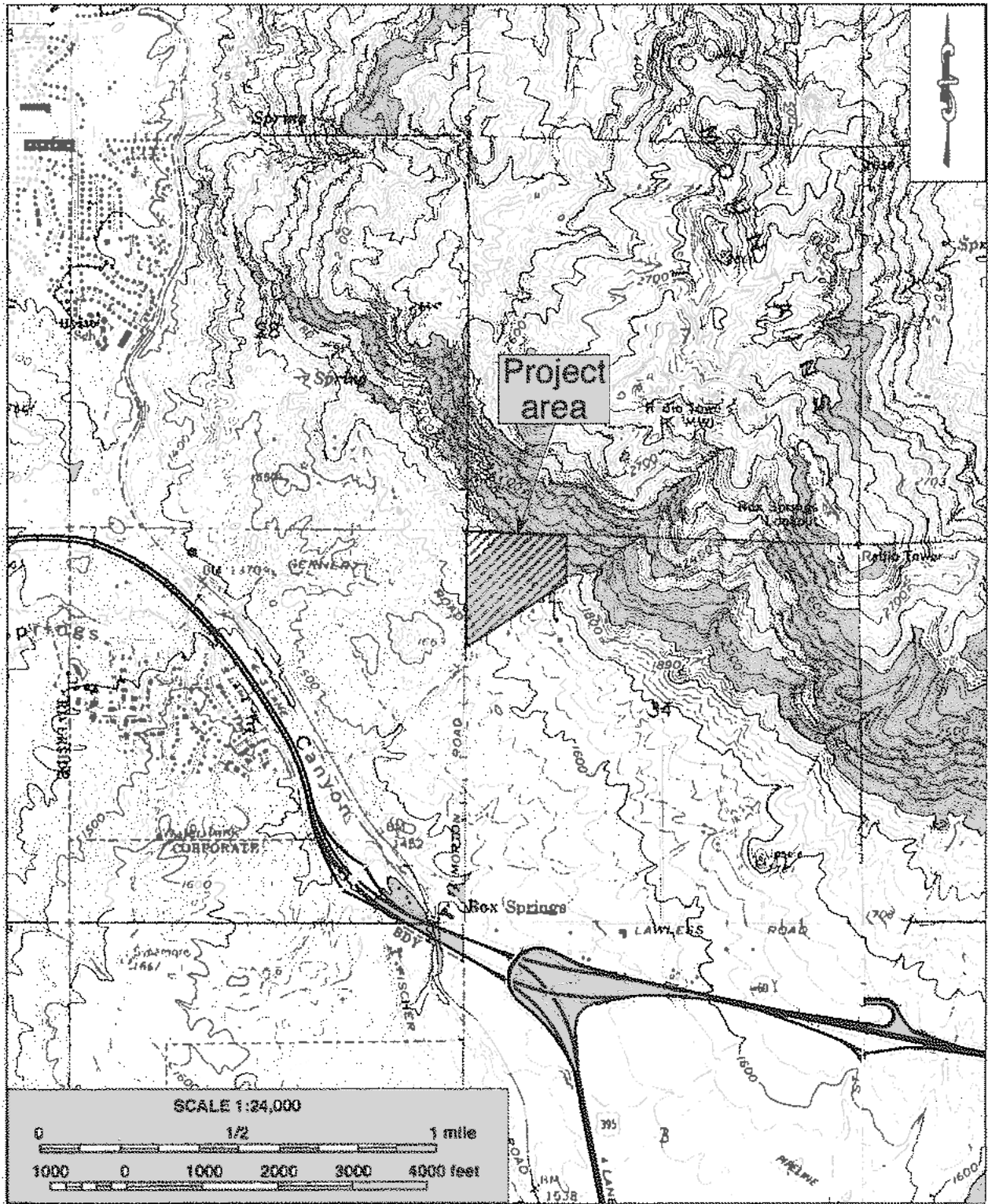


Figure 2. Project area. (Based on USGS Riverside East, Calif., 1:24,000 quadrangle [USGS 1980])

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

SETTING

CURRENT NATURAL SETTING

The project area is situated on the southwestern edge of the Box Springs Mountains, near the boundary between the Cities of Moreno Valley and Riverside. The surrounding region often experiences some extreme temperatures, reaching over 100 degrees in summer and dipping below freezing in winter. The project area is bounded on the north, east, and west by undeveloped land, and on the south by an unnamed drainage and neighboring residential properties. Most of the western portion of the property has been recently disked to remove brush, but there are a number of eucalyptus trees and structural remains located in the eastern portion, indicative of past land use (Fig. 3). Several dirt off-highway vehicle trails traverse the property from the southwest to the northeast, and a motorcycle loop trail is found near the center of the property (Fig. 3).

The elevation of the property rises steeply from the west to the east, ranging between 1,580 and 2,080 feet above mean sea level. It is crossed by several minor drainages that course down from the western slope of the Box Springs Mountains, including one that contains a pool of water fed by a spring. Some other damp spots on the property also appear to be springs, as there are dense growths of vegetation around them, including poison oak, reeds, sycamore, eucalyptus, and pepper trees. Vegetation on the hillside above the springs is dominated by a species of *Encelia*, a native shrub that prefers drier soils.

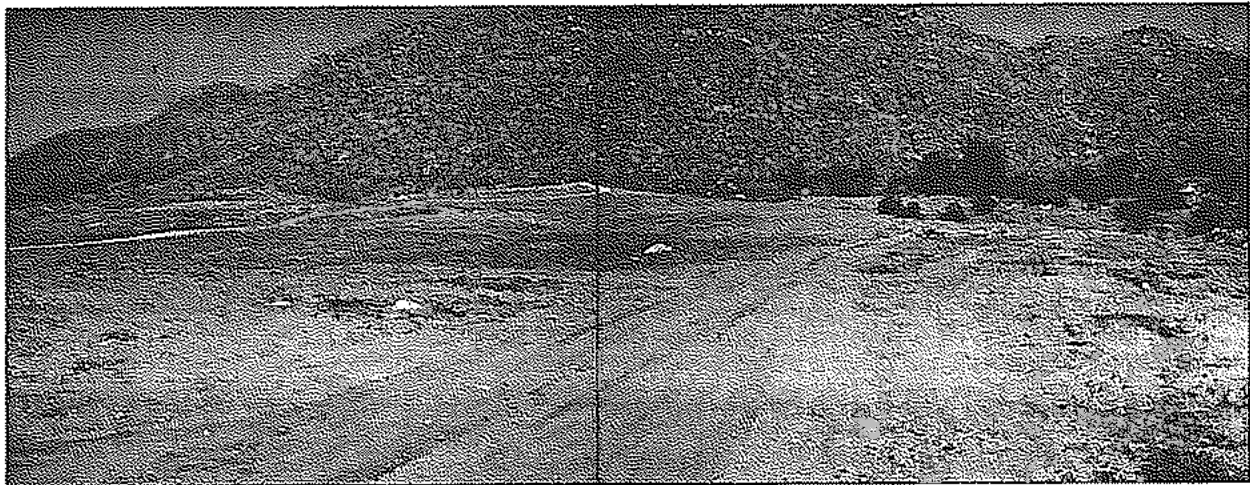


Figure 3. Typical landscapes in the project area. *Left*: view to the north toward the Box Springs Mountains; *right*: view to the northeast toward springs, eucalyptus trees, and structural remains.

CULTURAL SETTING

Prehistoric Context

It is widely acknowledged that human occupation in what is now the State of California began 8,000-12,000 years ago. In attempting to describe and understand the cultural processes that occurred in the ensuing years, archaeologists have developed a number of chronological frameworks that endeavor to correlate the technological and cultural changes that are observable in archaeological records to distinct time periods. Unfortunately, none of these chronological frameworks has been widely accepted, and none has been developed

specifically for the so-called Inland Empire, the nearest ones being for the Colorado Desert and Peninsular Ranges area (Warren 1984) and for the Mojave Desert (Warren and Crabtree 1986).

The development of an overall chronological framework for the region is hindered by the lack of distinct stratigraphic layers of cultural sequences that could be dated by absolute dating methods to provide concrete dates. Since results from archaeological investigations in this region have yet to be synthesized into an overall chronological framework, most archaeologists tend to follow a chronology adapted from a scheme developed by William J. Wallace in 1955 and modified by others (Wallace 1955; 1978; Warren 1968; Chartkoff and Chartkoff 1984; Moratto 1984). Although the beginning and ending dates of the different horizons or periods may vary, the general framework of prehistory in this region under this chronology consists of the following four periods:

- Early Hunting Stage (ca. 10,000 BC-6,000 BC), which was characterized by human reliance on big game animals, as evidenced by large, archaic-style projectile points and the relative lack of plant-processing artifacts;
- Millingstone Horizon (ca. 6,000 BC-AD 1,000), when plant foods and small game animals came to the forefront of subsistence strategy, and from which a large number of millingstones, especially well-made, deep-basin metates, were left;
- Late Prehistoric Period (ca. AD 1,000-1,500), during which a more complex social organization, a more diversified subsistence base—as evidenced by smaller projectile points, expedient millingstones and, later, pottery—and regional cultures and tribal territories began to develop;
- Protohistoric Period (ca. AD 1,500-1,700s), which ushered in long-distance contact with Europeans, and thereby led to the Historic Period.

Ethnohistoric Context

The subject property of this study lies in an area where the traditional territories of three Native American groups overlap: the Serrano of the San Bernardino Mountains, the Luiseño of the Perris-Elsinore region, and the Gabrielino of the San Gabriel Valley. Kroeber (1925:Plate 57) suggests that the Native Americans of the Riverside area were probably Luiseño, Reid (1968:8-9) states that they were Serrano, and Strong (1929:7-9, 275) claims that they were Gabrielino. In any case, there also occurred a late influx of Cahuilla during the 19th century (Bean 1978).

Whatever the linguistic affiliation, Native Americans in the Riverside/Moreno Valley area exhibited similar social organization and resource procurement strategies. Villages were based on clan or lineage groups. Their home/base sites are marked by midden deposits, often with bedrock mortar/metate features. During their seasonal rounds to exploit natural resources, small groups often ranged some distances in search of specific plants and animals. Their gathering strategies often left behind signs of special use sites, such as boulder slicks, at the locations of the resources.

Historic Context

In comparison to other nearby communities such as Riverside and San Jacinto, the City of Moreno Valley is a "late-boomer" both in early development in the 19th century and in urban growth in the 20th. By the mid-19th century, the area that constitutes present-day

Moreno Valley remained essentially uninhabited, despite its location on a plain surrounded by several large Mexican land grants. In 1853-1855, when the U.S. government initiated the first official land survey in southern California, the only man-made features observed in the area were a few roads crisscrossing the desert floor, including a wagon road from San Bernardino to Temecula, a second one leading to San Jacinto, and several unidentified roads or trails.

The Moreno Valley area remained unclaimed public land until 1870, when a large tract of 13,471 acres was purchased from the U.S. government in one single transaction. It was on this vast acquisition that the 11,560-acre Alessandro Tract and the town of Alessandro, where the March Air Reserve Base lies today, were laid out and offered to settlers in 1887 (Gunther 1984:11), during a land boom that swept through southern California in the 1880s. After this initial development scheme failed, the developers of Redlands in San Bernardino County, fresh from their acclaimed success in creating the Bear Valley reservoir and the thriving Redlands colony, took over the Alessandro Tract with the intention of irrigating the land with an elaborate water system (*ibid.*).

Water from the Bear Valley reservoir reached the Moreno Valley area in 1891, ushering in a few years of prosperity in the early 1890s. Two more communities came into being in the vicinity during this brief boom: New Haven, soon to be renamed Moreno, and Midland, also known as Armada (Gunther 1984:323, 333). However, the boom soon turned to bust during the drought of the late 1890s, when Bear Valley water was no longer delivered to the Moreno Valley area. As a result, the budding towns in the area became largely abandoned, and many of the buildings were taken up and moved to Riverside (*ibid.*:13, 334).

During the early 20th century, the Moreno Valley area began to recover slowly. In 1912, a 1,100-acre portion of the original Alessandro Tract was re-subdivided as the Sunnymead Orchard Tract (County Surveyor 1912), thus bestowing on the community formerly known as Midland or Armada the new name of Sunnymead. Closer to the project location, a series of development projects began in 1923 to the west of Sunnymead, which ultimately resulted in the establishment of the community of Edgemont (Gunther 1984:171-172).

Despite these development efforts, Moreno Valley's economic prospect was severely hampered by the lack of reliable water supply until 1973, after the completion of the California Aqueduct and its southern terminus, Lake Perris (Gunther 1984:334). Since then, the promise of affordable housing brought an influx of commuters to the Moreno Valley area, setting off a period of rapid growth and urbanization. By 1984, when residents in the communities of Moreno, Sunnymead, and Edgemont voted to incorporate as the City of Moreno Valley, the new city had already become the second most populous in Riverside County (*ibid.*), thanks mainly to its attraction as a "bedroom community."

RESEARCH METHODS

RECORDS SEARCH

On April 18, 2007, CRM TECH archaeologist Nina Gallardo (see App. 1 for qualifications) conducted the historical/archaeological resources records search at the Eastern Information Center (EIC), University of California, Riverside. The EIC is the State of California's official cultural resource records repository for the County of Riverside, and a part of the

California Historical Resources Information System established and maintained under the auspices of the California Office of Historic Preservation.

During the records search, Gallardo examined maps and records on file at the EIC for previously identified cultural resources in or near the project area, and existing cultural resources reports pertaining to the vicinity. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or Riverside County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Information System.

NATIVE AMERICAN PARTICIPATION

As part of the research procedures, CRM TECH contacted the State of California's Native American Heritage Commission on April 17, 2007, to request a records search in the commission's sacred lands file. Following the commission's recommendations, CRM TECH further contacted a total of 16 Native American representatives in the region in writing on April 18 to solicit local Native American input regarding any possible cultural resources concerns over the proposed project. The correspondences between CRM TECH and the Native American representatives are attached to this report in Appendix 2.

FIELD SURVEY

On April 21 and 24, 2007, CRM TECH archaeologists Daniel Ballester and Clarence Bodmer (see App. 1 for qualifications) carried out the intensive-level, on-foot field survey of the project area. During the survey, Ballester and Bodmer walked parallel north-south transects spaced 15 meters (approx. 50 feet) apart across most of the property, where the ground surface was moderately to slightly sloped. On the steeper slopes of the easternmost portion of the parcel, where the incline exceed 30%, the survey team walked transects along the contours of the slope. The numerous boulder outcrops found in the project area were closely examined for any indications of past Native American use or modification.

Using these survey methods, the ground surface in the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic periods (i.e., 50 years ago or older). Ground visibility was excellent (90-100%) across most of the parcel since the surface vegetation was recently removed. In contrast, dense vegetation around many of the bedrock outcrops and in the areas where springs and structural ruins were found made for poor (0-30%) ground visibility at these locales.

When features or artifacts were identified, their locations were marked with survey flags and the surrounding area inspected for any artifacts or additional features. The survey team noted each location on field maps and flagged the area to facilitate further recordation after the completion of the survey. An appropriate level of recordation was completed for all potential archaeological resources identified during the field survey, including, at minimum, a description of the resource, a scaled sketch, and its location on a USGS map. The field maps and descriptions were then compiled into standard site record and site record update forms and submitted to the EIC for inclusion in the California Historical Resources Information System.

HISTORICAL RESEARCH

Historical background research for this study was conducted by CRM TECH principal investigator/historian Bai "Tom" Tang (see App. 1 for qualifications) on the basis of published literature in local and regional history, archival records of the U.S. Bureau of Land Management (BLM), and historic maps of the project area. Among maps consulted for this study was the U.S. General Land Office's (GLO) land survey plat maps dated 1855-1877 and the U.S. Geological Survey's (USGS) topographic maps dated 1901-1967. These maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the BLM, located in Moreno Valley.

RESULTS AND FINDINGS

RECORDS SEARCH

According to records on file at the Eastern Information Center, the project area was apparently covered by two large-scale cultural resources studies completed in the 1980s (Fig. 4), but no historical/archaeological sites were found within or adjacent to the present project area (McCarthy 1987; Drover 1989). While both of the 1980s studies included field inspections, the field methods used in these studies, described as an "intuitive survey" in one (Drover 1989:6) and consisting of 30-meter transects in the other (McCarthy 1987:7), do not appear to be consistent with today's standard for an intensive-level survey. In any event, since both of those studies are now nearly 20 years old, a systematic resurvey was deemed necessary for this study.

Outside the project boundaries but within a one-mile radius, EIC records show a total of 14 other previous cultural resources studies covering various tracts of land and linear features (Fig. 4). In all, more than 50% of the land within the one-mile radius has been surveyed, resulting in the identification of 37 historical/archaeological sites and one isolate—i.e., site with fewer than three artifacts (Table 1). Seven of these sites, CA-RIV-3245/H, -4182H, -4183, -4184, -4185, -4187, and -4188, were later combined and re-assigned a new designation, CA-RIV-6943/H, to form a large site with both prehistoric and historic-period components, including nine bedrock milling stations and a number of features associated with a late-19th century homestead (Table 1).

The other 29 recorded sites within the scope of the records search included 23 prehistoric—i.e., Native American—sites, 3 historic-period sites, and 2 historic-period buildings. One of the prehistoric sites contained a boulder dotted with cupules, and another was a rock-shelter with midden soils, milling slicks, and scattered groundstone and chipped-stone artifacts. Twenty-one of the prehistoric sites were bedrock milling features consisting of milling slicks or metates and at least one mortar, but no visible surface artifacts.

The three historic-period sites included a former military shooting range, concrete slabs and footings along a former Santa Fe Railroad siding, and an early 20th century trash scatter. The two historic-period buildings were both described as early 20th century Mediterranean/Spanish Revival-style residences. The isolate identified within the scope of the records search consisted of three 19th century coins found together.

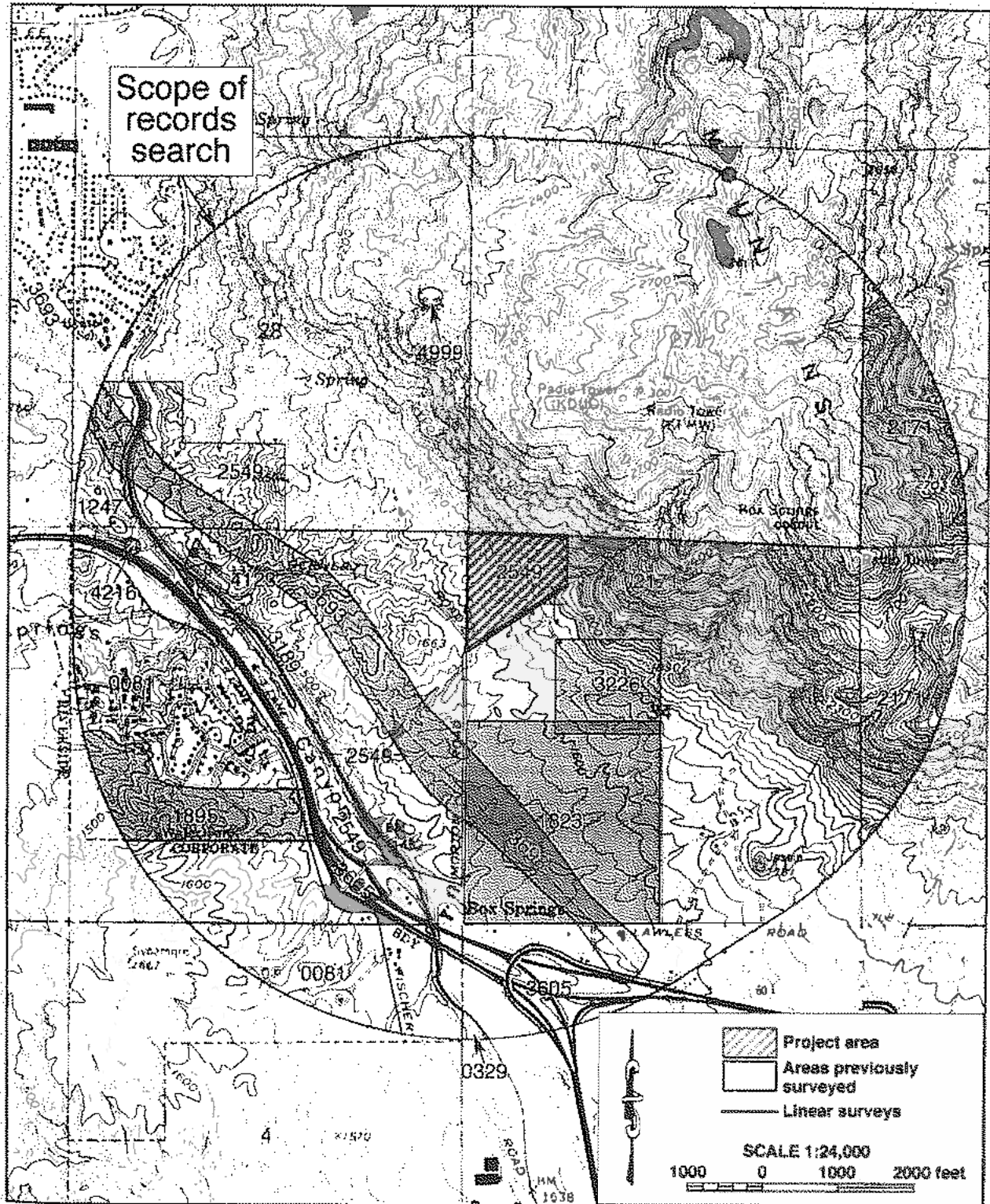


Figure 4. Previous cultural resources studies in the vicinity of the project area, listed by EIC file number. Locations of historical/archaeological sites are not shown as a protective measure.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Site No.	Recorded by/Date	Description
CA-RIV-1194	Gardner 1973; Voast and Sundberg 1989, 1991	One bedrock metate and one bedrock mortar on a single rock outcrop
CA-RIV-1200	Gardner 1973	Two bedrock metates on a single rock outcrop
CA-RIV-1203	Gardner 1973	Two bedrock milling surfaces on a single rock outcrop
CA-RIV-1206	Gardner 1973	One milling surface on a single rock outcrop
CA-RIV-2868	Drover 1984	One milling slick on a single rock outcrop
CA-RIV-2869	Drover 1984	Two milling slicks on two boulders
CA-RIV-3241	Pinto 1987	Three milling slicks on two boulders
CA-RIV-3242	Pinto 1987	One milling slick on a single boulder
CA-RIV-3243	Pinto 1987	One milling slick on a single boulder
CA-RIV-3244	Pinto 1987	Seven milling slicks on five boulders
CA-RIV-3245/H	Keller 1991; Ballester 2002	Three boulders containing one milling slick each; re-designated as Feature 19 of CA-RIV-6943/H in 2002
CA-RIV-3246	Pinto 1987	One boulder with one slick, and one boulder with three slicks
CA-RIV-3264	Parr et al. 1987	One boulder with one slick
CA-RIV-3265	Swope et al. 1987	Five milling slicks on a single boulder outcrop
CA-RIV-3266	Parr and Neiditch	Four milling slicks on two boulders
CA-RIV-3267	Parr et al. 1987	Rock shelter, midden soil, milling slicks, lithic scatter
CA-RIV-3268	Parr et al. 1987	Boulder with slick and cupules
CA-RIV-3269	Parr et al. 1987	One boulder with one slick
CA-RIV-3272H	Parr et al. 1987	Military shooting/target range
CA-RIV-3815	Drover and Jackson 1989	One milling surface on a single rock outcrop
CA-RIV-3816	Drover and Jackson 1989	Five bedrock milling surfaces on three rock outcrops
CA-RIV-3817H	Gerry and Oglesby 1989	Concrete slabs and footings along a former Santa Fe Railroad siding
CA-RIV-4181	Keller 1991; Ballester 2002	Four bedrock milling slicks on a single rock outcrop
CA-RIV-4182H	Keller 1991; Ballester 2002	Two rock walls and remains of house foundation known as Webbe's House, re-designated as Features 1-9b of CA-RIV-6943/H in 2002
CA-RIV-4183	Keller 1991; Ballester 2002	One boulder with one grinding slick, re-designated as Feature 11 of CA-RIV-6943/H in 2002
CA-RIV-4184	Keller 1991; Ballester 2002	One boulder with one shallow mortar, re-designated as Feature 15 of CA-RIV-6943/H in 2002
CA-RIV-4185	Keller 1991; Ballester 2002	One boulder with three grinding slicks, re-designated as Feature 14 of CA-RIV-6943/H in 2002
CA-RIV-4186	Keller 1991	One boulder with one grinding slick
CA-RIV-4187	Keller 1991; Ballester 2002	One boulder with one grinding slick, re-designated as Feature 12 of CA-RIV-6943/H in 2002
CA-RIV-4188	Keller 1991; Ballester 2002	One boulder with four grinding slicks, re-designated as Feature 10 of CA-RIV-6943/H in 2002
CA-RIV-4189	Keller 1991	One boulder with one grinding slick
CA-RIV-4195	Schmidt et al. 1990	Four bedrock milling slicks on four boulders
CA-RIV-5669	Keller 1995	Three milling slicks on a single boulder
CA-RIV-5670	Keller 1995	Scattered historic-period glass, ceramic, metal, and garment fragments
CA-RIV-6943/H	Ballester 2002	A total of 19 features, including many that were previously recorded and designated as individual sites; nine bedrock milling features with slicks on boulders; structural remains associated with the late 19th century homestead of Cecil R.G. Webbe
33-11825	Warner 1983	Mediterranean/Spanish Revival-style residence, ca. 1937
33-11826	Warner 1983	Mediterranean/Spanish Revival-style residence, ca. 1937
33-13608	Gardner 1973	Isolated find: three 19th century coins found together—a Mexican peso, a Swedish öre, and a Canadian penny

The presence of these previously recorded sites and artifacts in the vicinity of the subject property suggests that similar cultural features could be found within the project boundaries. However, none of these recorded cultural resources was found within or immediately adjacent to the project area. Therefore, none of them requires further consideration during this study.

NATIVE AMERICAN PARTICIPATION

In response to CRM TECH's inquiry, the Native American Heritage Commission reports that the sacred lands record search identified no Native American cultural resources in the vicinity of the project area. However, noting that "the absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any 'area of potential effects'," the commission recommends that local Native American representatives be consulted for additional information, and provided a list of potential contacts (see App. 2).

Upon receiving the Native American Heritage Commission's response, CRM TECH contacted all 13 individuals on the list and the organizations they represent. In addition, Dale Foster, Cultural Analyst for the Temecula Band of Luiseño Mission Indians, Erica Helms, Cultural Resources Administrator for the Soboba Band of Luiseño Indians, and John Gomez, Cultural Resources Coordinator for the Ramona Band of Cahuilla Indians, were also contacted. As of this time, two written responses have been received (see App. 2).

Britt Wilson, Cultural Resources Coordinator for the Morongo Band of Mission Indians, replied by e-mail on April 18, 2007. In the e-mail, Mr. Wilson identifies the project location as a part of the Morongo Tribe's Traditional Use Area. He states that he has no specific information retaining to the project area but that "there are substantial and numerous Native American cultural resources within very close proximity to this site." Therefore, he recommends archaeological monitoring, with at least one Native American monitor from the Morongo Band, during ground-disturbing activities. If any Native American cultural resources or human remains are discovered during such activities, Mr. Wilson requests that proper procedures be followed in accordance with state law and regulations. Furthermore, on behalf of the Morongo Band, Mr. Wilson requests a copy of any cultural resources reports generated in relation to this project and further consultations as part of any treatment plan necessitated by archaeological discoveries (see App. 2).

In the letter dated April 30, 2007, Erica Helms also requests that cultural resource monitor(s) be present during any ground-disturbing activities in the project area. In addition, she requests copies of cultural resource documentation generated through this study, as well as further consultation regarding the proposed project (see App. 2).

POTENTIAL HISTORICAL RESOURCES IN THE PROJECT AREA

As a result of the field survey, two previously unknown archaeological sites and one isolate were identified within the boundaries of the project area. The sites have since been designated as CA-RIV-7284/H (33-15937) and -7285 (33-15938) by the Eastern Information Center (see App. 3 for site and isolate records).

Site CA-RIV-7284/H (33-15937): This site, which consists of both a prehistoric and historic-period component, is located approximately 1,280 feet east of Gernert Road and 480 feet

north of Jennings Court. The southern half of the site is situated near the southern boundary of the project area, on a low ridge near the confluence of two natural drainages. The northern portion lies on a relatively level natural terrace at the foot of the Box Springs Mountains. The prehistoric element of CA-RIV-7284/H occurs in the south part of the site and contains eight bedrock milling features with a total of 14 grinding slicks found on the bedrock surfaces. Two manos—i.e., hand-held grinding stones—were found among boulders with unmodified surfaces.

The historic-period component of the site occurs to the north and consists mainly of several structural features and refuse scatters, possibly associated with a late 19th century or early to mid-20th century homestead. The features at the site include dry-lain rock alignments, a rock-and-cement-walled cellar, two small concrete foundations, a concrete step, a well, a cistern, and a dirt access road. A prehistoric stone metate, used as construction material, was observed in the wall of the cellar. The refuse deposit found at the site contains rusted cans of various sizes and shape, ceramic sherds, one complete ink bottle, and blue, clear, and amethyst glass shards.

Site CA-RIV-7285 (33-15938): This site is located approximately 1,600 feet east of Gernert Road and 1,040 feet north of Frankhale Road, near the base of the Box Springs Mountains. It lies near the eastern boundary of the property, partially within an area that is reserved for open space. The site consists of two bedrock milling features with a total of three milling slicks found on the bedrock surfaces, and measures approximately 33 meters north-south and 8 meters east-west, with the features located at each end of the site.

Isolate: The isolate recorded in the project area is a single groundstone piece that may have been used both as a mano and as a pestle. It was found in the southern portion of the property, to the west of Site CA-RIV-7284/H. The artifact may have been unearthed during disking in the area, and its presence suggests that additional cultural material may exist as buried deposits at that location.

HISTORICAL RESEARCH RESULTS

Based on historic sources consulted for this study, the project vicinity had evidently experienced some settlement activities at least by the 1870s. As Figure 5 shows, a few man-made features were observed in the vicinity in the 1850s-1870s, including a "Road to San Diego," "Webb's House," and "Quinn's House." The project area itself, however, apparently remained unsettled at that time (Fig. 5). According to records of the Bureau of Land Management, the project area was included in a homestead patent granted by the U.S. government to Cecil R.G. Webbe, an early settler in the Box Springs area, in the early 1880s (BLM n.d.).

By the late 1890s, several additional roads and buildings had appeared in the vicinity, including one building, presumably a residence, in the southeastern portion of the project area that closely matches the location of structural ruins found at Site CA-RIV-7284/H during the field survey (Fig. 6; App. 3). Historic maps of the area reveal that a building, possibly the same one, existed at that location in the 1930s, the 1950s, the 1960s, and probably as late as 1978 (Figs. 2, 7, 8). The building no longer survives today, as discovered during the field survey, and the bulk of the land within the project area, except for a road that traversed northeasterly to the residence, was vacant and undeveloped throughout the historic period (Figs. 5-8).

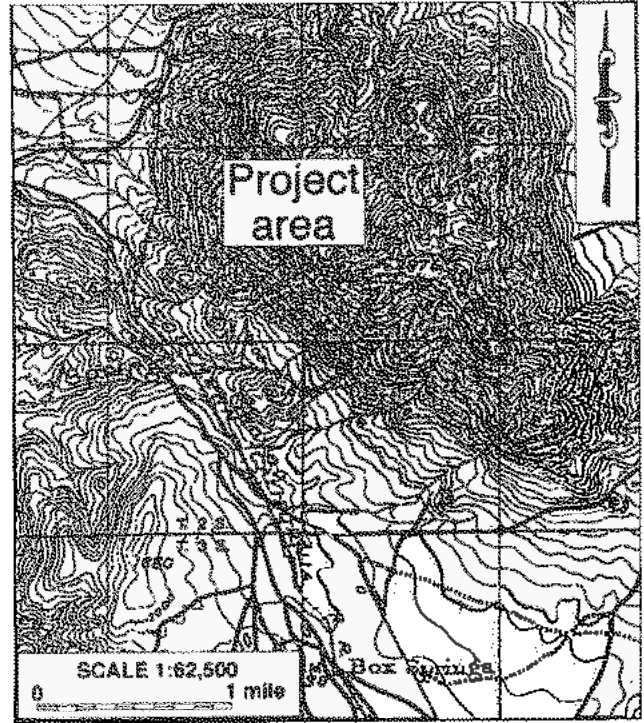
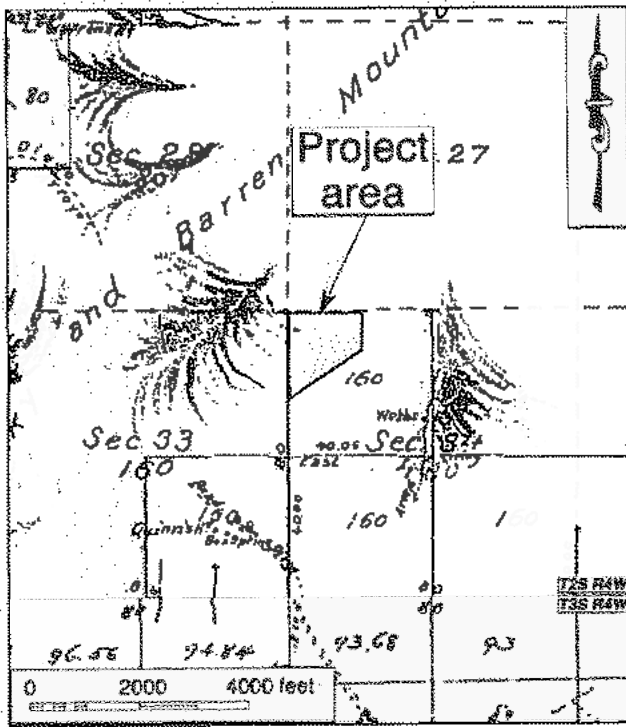


Figure 6. The project area and vicinity in 1897. (Source: USGS 1901)

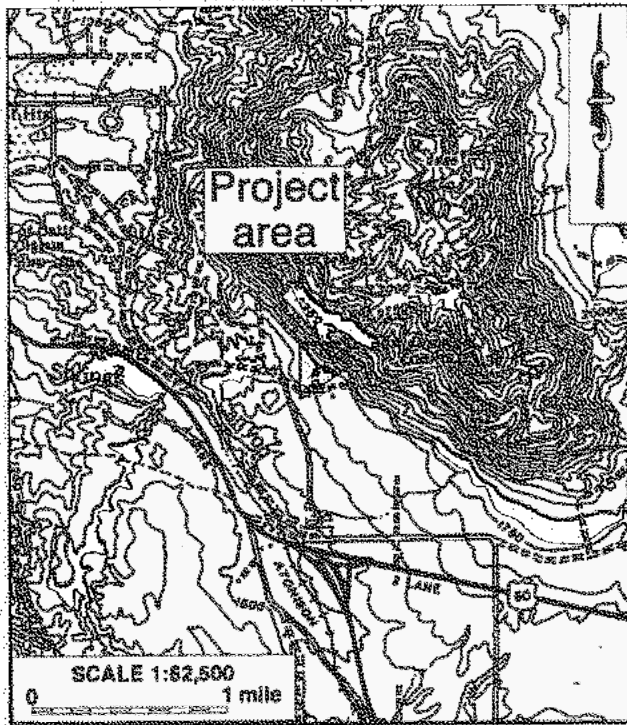


Figure 7. The project area and vicinity in 1939. (Source: USGS 1942)

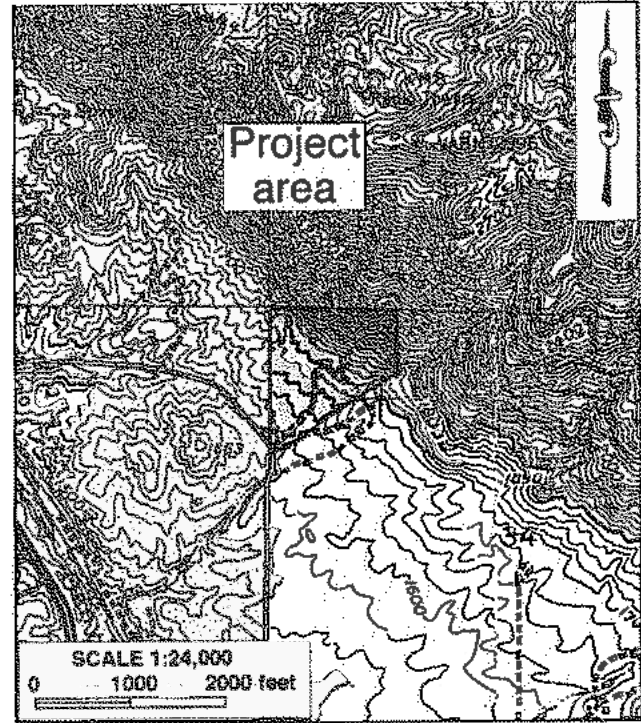


Figure 8. The project area and vicinity in 1951-1953. (Source: USGS 1953)

DISCUSSION

The purpose of this study is to identify any cultural resources within or adjacent to the project area, and to assist the City of Moreno Valley in determining whether such resources meet the official definition of "historical resources," as provided in the California Public Resources Code, in particular CEQA.

DEFINITION

According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)).

Regarding the proper criteria of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- (2) Is associated with the lives of persons important in our past.
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- (4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

Pursuant to these statutory and regulatory guidelines, the cultural resources in the project area are evaluated under the California Register criteria. The results of the evaluation are discussed below.

EVALUATIONS

Site CA-RIV-7284/H

Site CA-RIV-7284/H contains cultural elements dating to both the prehistoric and historic periods. The prehistoric component of the site consists of eight bedrock milling stations with grinding slicks on their surface, and two hand-held grinding stones. The milling stations occur along the edge of the Box Springs Mountains, where natural springs and seasonal drainages would have afforded prehistoric peoples a suitable environment for gathering and processing vegetal and animal resources. As the records search results showed, many similar prehistoric sites have been identified in the vicinity, some of which contained subsurface cultural deposits. Because the milling features at CA-RIV-7284 occur on gradual slopes with a build-up of alluvium from steeper inclines of the Box Springs

Mountains, there is a good possibility that the area may contain buried deposits that could yield additional information regarding the true nature of the site.

The historic-period component of CA-RIV-7284/H include rock alignments, foundations, a cellar, a well, a cistern, and a refuse deposit possibly associated with a late 19th century or early to mid-20th century homestead. More in-depth historical research may yield information regarding the exact age and historical association of these remains as well as a chronology of events occurring at the site. At this time, there is insufficient information to relate these features to a specific person or event in history, or to ascertain the existence or absence of buried cultural deposits.

Because of the possibility of undetected subsurface cultural deposits from both the prehistoric and the historic periods, the archaeological data potential of Site CA-RIV-7284/H is unclear. As a result, the historical significance of the site cannot be determined without further archaeological investigations, including subsurface excavations, as well as more detailed historical background research. In order to adequately evaluate the significance of the site, additional research procedures will be necessary, as outlined below.

Site CA-RIV-7285

CA-RIV-7285 consists of two bedrock milling features exhibiting three grinding slicks. Like the prehistoric element of CA-RIV-7284/H, the milling stations at this site are located on the edge of the Box Springs Mountains, where there is some buildup of alluvium. Thus, there is a possibility that buried artifacts may be present at this site as well. Because of the uncertainty of its data potential, the historical significance of CA-RIV-7285 cannot be determined without further archaeological investigations.

Isolate

The isolate identified within the project area consists of a hand-held grinding stone that appears to have been used both as a mano and as a pestle. The artifact was found in a disked area near some natural springs, which suggests that additional cultural material may be present as buried deposits. Isolates, or localities with fewer than three artifacts, by definition do not constitute archaeological sites due to the lack of contextual integrity, and thus are not considered potential "historical resource." This particular artifact, similarly, requires no further consideration in the CEQA-compliance process. However, the location where it was discovered appears to warrant some limited additional archaeological investigation to ascertain the existence or absence of buried cultural artifacts in the area.

CONCLUSION AND RECOMMENDATIONS

The foregoing report has provided background information on the project area, outlined the methods used in the current study, and presented the results of the various avenues of research. As a result of these procedures, two archaeological sites, CA-RIV-7284/H (33-15937) and CA-RIV-7285 (33-15938), and one prehistoric isolate were identified within the project boundaries. The isolate, by definition, does not qualify as a significant archaeological resource. However, because the artifact is situated in a disked area near natural springs, there is a possibility that additional buried artifacts could be present. Therefore, the excavation of a few shovel test pits is recommended for this locality.

The significance of Sites CA-RIV-7284/H and -7285 cannot be properly evaluated without further archaeological investigations. Since both sites are located in an area that will be impacted by the proposed development project, CRM TECH recommends that an archaeological testing and evaluation program be implemented to determine the presence or absence of any subsurface cultural deposits, and thereby the significance of the sites. The testing and evaluation program should consist of, at a minimum, surface collection of artifacts, excavation of archaeological test pits and units, laboratory analysis of recovered artifacts, preparation of report presenting the findings, and permanent curation of artifacts at an appropriate facility. It should also include additional historical background research on the historic-period component of Site CA-RIV-7284/H. Further recommendations regarding the final treatment of the sites will be formulated and presented on the basis of the results of the testing and evaluation program.

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**APPENDIX 1:
PERSONNEL QUALIFICATIONS**

**PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.**

Education

- 1988-1993 Graduate Program in Public History / Historic Preservation, UC Riverside.
1987 M.A., American History, Yale University, New Haven, Connecticut.
1982 B.A., History, Northwestern University, Xi'an, China.
- 2000 "Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994 "Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

- 2002- Principal Investigator, CRM TECH, Riverside, California.
1993-2002 Project Historian / Architectural Historian, CRM TECH, Riverside, California.
1993-1997 Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993 Project Historian, Archaeological Research Unit, UC Riverside.
1990 Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992 Teaching Assistant, History of Modern World, UC Riverside.
1988-1993 Research Assistant, American Social History, UC Riverside.
1985-1988 Research Assistant, Modern Chinese History, Yale University.
1985-1986 Teaching Assistant, Modern Chinese History, Yale University.
1982-1985 Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Honors and Awards

- 1988-1990 University of California Graduate Fellowship, UC Riverside.
1985-1987 Yale University Fellowship, Yale University Graduate School.
1980, 1981 President's Honor List, Northwestern University, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

Membership

California Preservation Foundation.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA

Education

- 1991 Ph.D., Anthropology, University of California, Riverside.
 1981 B.S., Anthropology, University of California, Riverside; with honors.
 1980-1981 Education Abroad Program, Lima, Peru.
- 2002 Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
- 2002 "Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
- 2002 "Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
- 1992 "Southern California Ceramics Workshop," presented by Jerry Schaefer.
 1992 "Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

- 2002- Principal Investigator, CRM TECH, Riverside, California.
 1999-2002 Project Archaeologist/Field Director, CRM TECH, Riverside.
 1996-1998 Project Director and Ethnographer, Statistical Research, Inc., Redlands.
 1992-1998 Assistant Research Anthropologist, University of California, Riverside
 1992-1995 Project Director, Archaeological Research Unit, U. C. Riverside.
 1993-1994 Adjunct Professor, Riverside Community College, Mt. San Jacinto College, UC Riverside, Chapman University, and San Bernardino Valley College.
 1991-1992 Crew Chief, Archaeological Research Unit, U. C. Riverside.
 1984-1998 Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

Register of Professional Archaeologists, Society for American Archaeology, Society for California Archaeology, Pacific Coast Archaeological Society, Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Josh Smallwood, B.A.

Education

- 1998 B.A., Anthropology, Humboldt State University, Arcata, California.
 1997 Archaeological Field School, Fort Ross Historic District, Fort Ross, California.
 Archaeological Field School, Coastal Test and Mitigation Projects, Arcata, California.
 1996 Archaeological Field School, Mad River Watershed Surveys, Blue Lake, California.
 1994 A.A., Anthropology, Palomar College, San Marcos, California.
 1993 Archaeological Field School, San Pasqual Battlefield, San Pasqual, California.
 Archaeological Field School, Las Flores Asistencia, Camp Pendleton, CA.
 1992 Archaeological Field School, Palomar College Campus Late Prehistoric Sites, San Marcos, California.
- 1994- Extensive study of lithic resource procurement strategies, reduction technology, tool manufacture, and reproduction.
 2002 "Historical Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base.
 2001 "CEQA and Section 106 Basics," presented by Richard Carrico, Principal Investigator, Brian F. Mooney & Associates, San Diego.
 "OSHA Safety Training for Construction Monitors," presented by OSHA and City of San Diego.
 2000 "HABS/HAER Recording Methods for Historic Structures," presented by Robert Case, Historic Archaeologist, Mooney & Associates, San Diego.
 1998 "Unexploded Ordinance Training," presented by EOD officers, Fort Irwin Army Training Facility, Barstow.
 1997 "Obsidian Sourcing through Characterization," presented by Thomas Origer, Sonoma State University.

Professional Experience

- 2002- Project Archaeologist/Report Writer, CRM TECH, Riverside, California.
 • Writer/co-author of cultural resource reports for BLM, FCC, and Caltrans-review, city general plans, commercial, and residential development projects.
 • Field-director, archaeological field work, historic-period building surveys and recordation, historical archaeologist, and lithic analysis.
 • Historical research based on published literature, historic maps, oral interviews, county and city archival records, internet sources, and consultation with local historical societies.
- 1997-2002 Archaeologist for several cultural resource management/environmental consultants, Department of Defense subcontractors, and Humboldt State University.

Cultural Resources Management Reports

Co-author of and contributor to numerous CEQA and Section 106 compliance studies since 1997.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Mariam Dahdul, M.A., RPA*

Education

- 2002 M.A., Anthropology, California State University, Fullerton.
 1993 B.A., Geography, California State University, Fullerton.
- 2003 "Ceramics Analysis," graduate seminar presented by Dr. Delaney-Rivera, California State University, Fullerton.
- 2002 "Section 106-National Historic Preservation Act: Federal Law at the Local Level," presented by UCLA Extension.
- 2002 "Historic Archaeology Workshop," presented by Richard H. Norwood, Base Archaeologist, Edwards Air Force Base.

Professional Experience

- 2000- Project Archaeologist, CRM TECH, Riverside.
- Preparing cultural resources management reports, maps, and site records;
 - Analyzing beads, ornaments, and shell;
 - Conducting archaeological field surveys;
 - Participating in various archaeological testing and mitigation programs.

Laboratory and Field Experience

- 2001 Archaeological field school under the direction of Dr. Brian Byrd.
- Test excavations of sites at the San Elijo Lagoon Reserve, including flotation of soil samples and sorting and cataloguing of artifacts.
- 2000 Archaeological field class under the direction of Dr. Claude Warren.
- Excavated units at Soda Lake in the Mojave Desert and produced lake bottom stratigraphic profiles.
- 1999-2000 Archaeology Laboratory, CSU, Fullerton.
- Assisted in the cataloguing of artifacts.
- 1999 Field survey course under the direction of Dr. Phyllisa Eisentraut.
- Surveyed and mapped prehistoric site in the Mojave Desert.

Papers Presented

- 2002 "Shell Beads from the Coachella Valley," Sixth Annual Symposium of the Coachella Valley Archaeological Society.
- 2002 "Shell Beads from the Coachella Valley," Kelso Conference on the Archaeology of the California and Mojave Deserts.

Cultural Resources Management Reports

Co-author of and contributor to numerous cultural resources management study reports since 2000.

* Register of Professional Archaeologists

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, B.A.

Education

- 1998 B.A., Anthropology, California State University, San Bernardino.
 1997 Archaeological Field School, University of Las Vegas and University of California, Riverside.
 1994 University of Puerto Rico, Rio Piedras, Puerto Rico.
 2002 "Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside.

Professional Experience

- 2002- Field Director, CRM TECH, Riverside.
 • Report writing, site record preparation, and supervisory responsibilities over all aspects of fieldwork and field crew.
- 1999-2002 Project Archaeologist, CRM TECH, Riverside.
 • Survey, testing, data recovery, monitoring, and mapping.
- 1998-1999 Field Crew, K.E.A. Environmental, San Diego.
 • Two and a half months of excavations on Topomai village site, Marine Corp Air Station, Camp Pendleton.
- 1998 Field Crew, A.S.M. Affiliates, Encinitas.
 • Two weeks of excavations on a site on Red Beach, Camp Pendleton, and two weeks of survey in Camp Pendleton, Otay Mesa, and Encinitas.
- 1998 Field Crew, Archaeological Research Unit, University of California, Riverside.
 • Two weeks of survey in Anza Borrego Desert State Park and Eureka Valley, Death Valley National Park.

PROJECT ARCHAEOLOGIST
Clarence Bodmer, B.A.

Education

2000-2002 Graduate Program in Archaeology, University of Kentucky, Lexington.
 1996 B.A., Archaeology, University of California, Santa Barbara.

Professional Experience

2006- Archaeologist/Report Writer, CRM TECH, Riverside, California.
 2006 Archaeologist, Tetra Tech, San Bernardino, California.
 2005-2006 Archaeologist, Discovery Works, Long Beach, California.
 2004-2005 Archaeological Technician, Statistical Research, Inc., Redlands, California.
 2003 Archaeological Technician, Wilbur Smith & Associates, Lexington, Kentucky.
 2000-2004 Archaeologist, Kentucky Archaeological Survey, Lexington, Kentucky.

Honors and Awards

2001-2002 Research Assistant, Department of Anthropology, University of Kentucky.
 1995-1996 Grant, University of California, Santa Barbara.
 1995-1996 Dean's Honor List, University of California, Santa Barbara.

Research Interests

Organization of complex societies, ceramic analysis, settlement patterns, spatial analysis using GIS and remote sensing applications.

Memberships

Society for American Archaeology.
 Society for California Archaeology.

NATIVE AMERICAN LIAISON
Laura Hensley Shaker, B.S.

Education

- 1998 B.S., Anthropology (with emphasis in Archaeology), University of California, Riverside.
- 1997 Archaeological Field School, University of California, Riverside.
- 2002 "Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside.
- 1999 "Unexploded Ordinance Training," presented by EOD officers; Fort Irwin Army Training Facility, Barstow.

Professional Experience

- 1999- Project Archaeologist, CRM TECH, Riverside.
- 1999 Archaeological survey and excavation at Vandenburg Airforce Base; Applied Earthworks, Lompoc.
- 1999 Archaeological survey at Fort Irwin Army Training Facility, Barstow; A.S.M. Affiliates, Encinitas.
- 1998-1999 Paleontological fieldwork and laboratory procedures, Eastside Reservoir Project; San Bernardino County Museum, Redlands.
- 1998 Archaeological survey at the Anza-Borrego State Park; Archaeological Research Unit, U.C. Riverside.
- 1997-1998 Archaeological survey and excavation at the Twentynine Palms Marine Corps Air and Ground Combat Center; Archaeological Research Unit, U.C. Riverside.

PROJECT ARCHAEOLOGIST
Nina Gallardo, B.A.

Education

- 2004 B.A., Anthropology / Law and Society, University of California, Riverside.

Professional Experience

- 2004- Project Archaeologist, CRM TECH, Riverside.
- Surveys, excavations, mapping, and records searches.

Honors and Awards

- 2000-2002 - Dean's Honors List, University of California, Riverside.

APPENDIX 2:
CORRESPONDENCES WITH
NATIVE AMERICAN REPRESENTATIVES*

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

* A total of 16 local Native American representatives were contacted; a sample letter is included in this report.



**CRM TECH
FAX COVER
SHEET**

4472 Orange Street
Riverside, CA 92501
951-784-3051 · Tel
951-784-2987 · Fax

To: Native American
Heritage Commission

Fax: (916) 657-5390

From: Laura Hensley Shaker

Date: April 17, 2007

Number of pages (including this
cover sheet):
2

HARDCOPY:

will follow by mail

will not follow unless
requested

RE: Sacred Land records search

This is to request a Sacred Lands records search

Name of project:
Tract 33626; APN 256-150-001
CRM TECH #2060

Project Size:
36 acres

Location:
In the City of Moreno Valley
Riverside County

USGS 7.5' quad sheet data:
Riverside East, Calif.
Section 34, T2S R4W, SBBM

Please call if you need more information or have any
questions.

Results may be faxed to the number above.

I appreciate your assistance in this matter.

Map included

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION

916 CAPITOL MALL, ROOM 364
 SACRAMENTO, CA 95814
 (916) 658-6251
 Fax (916) 657-5390
 Web Site www.nahc.ca.gov
 e-mail: ds_nahc@pacbell.net



April 17, 2007

Ms. Laura Hensley Shaker

CRM TECH

4472 Orange Street
 Riverside, CA 92501

Sent by FAX to: 951-784-2987

Number of pages: 3

Re: Cultural Resource Identification Study/Sacred Lands File Search for Proposed Tract 33626
 Project in City of Moreno (CRM TECH #2060); Riverside County, California

Dear Ms. Hensley Shaker: *Laura*

The Native American Heritage Commission was able to perform a record search of its Sacred Lands File (SLF) for the affected project area. The SLF failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any 'area of potential effect (APE).'

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the nearest tribes that may have knowledge of cultural resources in the project area. A List of Native American contacts are attached to assist you. The Commission makes no recommendation of a single individual or group over another. It is advisable to contact the person listed; if they cannot supply you with specific information about the impact on cultural resources, they may be able to refer you to another tribe or person knowledgeable of the cultural resources in or near the affected project area (APE).

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.6 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
 Dave Singleton
 Program Analyst

Attachment: Native American Contact List

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Native American Contacts
Riverside County
April 17, 2007

Cahuilla Band of Indians
Anthony Madrigal, Jr., Interim-Chairperson
 P.O. Box 391760 Cahuilla
 Anza , CA 92539
 tribalcouncil@cahuilla.net
 (951) 763-2631

 (951) 763-2632 Fax

Santa Rosa Band of Mission Indians
John Marcus, Chairman
 P.O. Box 609 Cahuilla
 Hemet , CA 92546
 srtribaloffice@aol.com
 (951) 658-5311
 (951) 658-6733 Fax

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resource Center
 P.O. Box 1477 Luiseno
 Temecula , CA 92593
 (951) 308-9295
 (951) 676-2768
 (951) 695-1778 Fax

Morongo Band of Mission Indians
Britt W. Wilson, Cultural Resources-Project Manager
 49750 Seminole Drive Cahuilla
 Cabazon , CA 92230 Serrano
 britt_wilson@morongo.org
 (951) 755-5206
 (951) 755-5200/323-0822-cell
 (951) 922-8146 Fax

Ramona Band of Mission Indians
Joseph Hamilton, vice chairman
 P.O. Box 391670 Cahuilla
 Anza , CA 92539
 admin@ramonatribe.com
 (951) 763-4105
 (951) 763-4325 Fax

San Manuel Band of Mission Indians
Ann Brierty, Environmental Department
 101 Pure Water Lane Serrano
 Highland , CA 92346
 abrierty@sanmanuel-nsn.gov
 (909) 863-5899 EXT-4321

 (909) 862-5152 Fax

San Manuel Band of Mission Indians
Henry Duro, Chairperson
 26569 Community Center Drive Serrano
 Highland , CA 92346
 (909) 864-8933
 (909) 864-3370 Fax

Soboba Band of Luiseño Indians
Bennae Calac, Cultural Resource Director
 P.O. Box 487 Luiseno
 San Jacinto , CA 92581
 (951) 663-8332
 (951) 654-4198 - FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American with regard to cultural resources for the proposed Tract 33626 Project ; APN 255-150-001 (CRM TECH #2060); City of Moreno Valley; Riverside County, California for which a Sacred Lands File search was requested.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Native American Contacts
Riverside County
April 17, 2007

Pechanga Band of Mission Indians
 Mark Macarro, Chairperson
 P.O. Box 1477 Luiseno
 Temecula, CA 92593
 tbrown@pechanga-nsn.gov
 (951) 676-2768
 (951) 695-1778 Fax

Cahuilla Band of Indians
 Maurice Chacon, Cultural Resources
 P.O. Box 391760 Cahuilla
 Anza, CA 92539
 cbandodian@aol.com
 (951) 763-2631
 (951) 763-2632 Fax

Willie Pink
 48310 Pechanga Road Luiseno
 Temecula, CA 92592
 wipink@hotmail.com
 (909) 936-1216
 Prefer e-mail contact

Serrano Band of Indians
 Goldie Walker
 6588 Valeria Drive Serrano
 Highland, CA 92346
 (909) 862-9883

Soboba Band of Luiseno Indians
 Harold Arres, Cultural Resources Manager
 P.O. Box 487 Luiseno
 San Jacinto, CA 92581
 harres@soboba-nsn.gov
 (951) 654-2765
 FAX: (951) 654-4198

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American with regard to cultural resources for the proposed Tract 33626 Project; APN 256-150-001 (CRM TECH #2060); City of Moreno Valley; Riverside County, California for which a Sacred Lands File search was requested.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

April 18, 2007

Ann Brierty, Cultural Resource Coordinator
San Manuel Band of Mission Indians
101 Pure Water Lane
Highland, CA 92346

RE: 36 Acres in APN 256-150-001; Tract 33626
In the City of Moreno Valley, Riverside County
CRM TECH Contract #2060

Dear Ms. Brierty:

CRM TECH is conducting a cultural resources study on the property referenced above. In the meantime, I am writing to request your input on potential Native American cultural resources on or near the property. Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional significance within or near the project area that we should be aware of before conducting the field survey. The lead agency for this project is the City of Moreno Valley in the CEQA review process. Please note that this project is not under the provision of SB18.

The property is located just north of the northern end of Morton Road and east of the eastern end of Gernert Road, in the City of Moreno Valley, Riverside County. The accompanying map, based on the USGS Riverside East, Calif., 7.5' quadrangle, depicts the location of the project area in the northwest corner of Section 34, T2S R4W, SBBM.

Any information, concerns or recommendations regarding cultural resources in the vicinity of the project area may be forwarded to CRM TECH by telephone, email, facsimile or standard mail. Thank you for the time and effort in addressing this important matter.

Respectfully,

Laura Hensley Shaker
CRM TECH

Encl.: Project location map

Subject: 36-acre project in Moreno Valley
Date: Wednesday, April 18, 2007 5:31 PM
From: Britt Wilson <britt_wilson@morongo.org>
To: Laura Hensley-Shaker <laura.shaker@crmtech.us>
Cc: Britt Wilson <britt_wilson@morongo.org>
Conversation: 36-acre project in Moreno Valley

Thank you for contacting the Morongo Band of Mission Indians concerning cultural resource information relative to the above referenced project(s). Due to the high number of information requests the Tribe has been receiving, we are only able to respond via email.

The project(s) is outside of the Tribe's current reservation boundaries but within an area that may be considered a traditional use area or one in which the Tribe has cultural ties (e.g. Cahuilla/Serrano territory). Although the Tribe has no specific information on your site, **there are substantial and numerous Native American cultural resources within very close proximity** to this site. In that light, the Tribe recommends the following:

- Archaeological site monitoring with at least one monitor being a Native American representing Morongo. The project developer can contact Britt Wilson to coordinate contract, etc.;
- In accordance with state law, the County coroner should be contacted if any human remains are found during earthmoving activities;
- If Native American cultural resources are uncovered during earthmoving activities, work in the immediate vicinity of the find shall cease and an archaeologist meeting Secretary of Interior standards shall be retained to assess the find. If the find is significant enough to require a Treatment Plan, the Morongo Band of Mission Indians asks that it be contacted again to provide further consultation.

[SPECIAL NOTE (for projects other than cell towers): *If* this project is associated with a city or county specific plan or general plan action it is subject to the provisions of SB18-Traditional Tribal Cultural Places (law became effective January 1, 2005) and will require the city or county to participate in **formal, government-to-government** consultation with the Tribe. If the city or county are your client, you may wish to make them aware of this requirement. By law, they are required to contact the Tribe. This email does *not* constitute consultation under SB18.]

Thank you for the opportunity to comment on the project.

Sincerely,

Britt W. Wilson
 Project Manager - Cultural Resources
 Morongo Band of Mission Indians
 49750 Seminole Drive (Casino Morongo Bldg)
 Cabazon, CA 92230
 Office: (951) 755-5200 Direct: (951) 755-5206
 Mobile: (951) 323-0822
 Fax: (951) 922-8146 E-mail: Britt_wilson@morongo.org

Wayta' Yawa' (always believe)



Mission:

Educate and communicate the rich heritage of Soboba peoples; Lead and assist individuals, organizations and communities in understanding the needs and concerns of Native American monitoring of traditional sites; Advocate Native American participation in state agencies and boards; Advocate legislation and enforcement of laws affecting Native American peoples and protecting historical and archaeological resources.

April 30, 2007

Attn: Laura Shaker
CRM TECH
4472 Orange Street
Riverside, Ca 92501

Re: Contract # 2060

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project(s) has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas.

Soboba Band of Luiseño Indians is requesting the following:

1. Further government to government consultation.
2. Copies of archeological and/or cultural resource documentation.
3. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests Cultural Resource Monitor(s) to be present during any ground disturbing proceedings.

[SPECIAL NOTE (for projects other than cell towers): If this project is associated with a city or county specific plan or general plan action it is subject to the provisions of SB18-Traditional Tribal Cultural Places (law became effective January 1, 2005) and will require the city or county to participate in formal, government-to-government consultation with the Tribe. If the city or county are your client, you may wish to make them aware of this requirement. By law, they are required to contact the Tribe.]



Sincerely,

A handwritten signature in black ink, appearing to read "Erica Helms".

Erica Helms

Soboba Band of Luiseño Indians

Phone (951) 487-8268

Cell (951) 663-8333

ehelms@soboba-nsn.gov

APPENDIX 3
SITE/ISOLATE RECORDS
(Confidential)

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

State of California--The Resources Agency
 DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 33-15937
 HRI # _____
 Trinomial CA-RIV-7284/H
 NRHP Status Code 7

Other Listings _____
 Review Code _____ Reviewer _____ Date _____

Page 1 of 4 *Resource Name or # (Assigned by recorder) CRM TECH 2060-1

- P1. Other Identifier: _____
- *P2. Location: Not for Publication Unrestricted *a. County Riverside
 and (P2b and P2c or P2d. Attach a Location Map as necessary.)
 *b. USGS 7.5' Quad Riverside East, Calif. Date 1980
T2S; R4W; NW 1/4 of NW 1/4 of Sec 34; S.B.B.M.
 Elevation: Approximately 1,640-1,720 feet above mean sea level
 c. Address N/A City Moreno Valley Zip _____
 d. UTM: (Give more than one for large and/or linear resources) Zone 11; 472,937 mE/ 3,757,387 mN
 UTM Derivation: USGS Quad GPS; NAD 1927
 e. Other Locational Data: (e.g., parcel #, directions to resource, etc., as appropriate) The site is located approximately 1,280 feet east of Gernert Road and 480 feet north of Jennings Court.
- *P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) The site consists of both prehistoric and historic-period components. The prehistoric element occurs in the southern part of the site and contains eight bedrock milling features with a total of 14 grinding slicks found on the bedrock surfaces. Two manos were found among boulders with unmodified surfaces.
The historic-period component of the site occurs to the north and consists mainly of several structural features and refuse scatters, possibly associated with a late 19th century or early to mid-20th century homestead. The features at the site include dry-lain rock alignments, a rock-and-cement-walled cellar, two small concrete foundations, a concrete step, a well, a cistern, and a dirt access road. A prehistoric stone metate, used as construction material, was observed in the wall of the cellar. The refuse deposit found at the site contains rusted cans of various sizes and shape, ceramic sherds, one complete ink bottle, and blue, clear, and amethyst glass shards.
- *P3b. Resource Attributes: (List attributes and codes) AP4-Bedrock-milling features; AH2-Foundations/structure pads; AH4-Trash scatter; AH5-Well/cistern
- *P4. Resources Present: Building Structure Object Site District Element of District
 Isolate Other
- P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.) _____
- P5b. Description of Photo: (view, date, accession #) _____
- *P6. Date Constructed/Age and Sources: Historic Prehistoric Both _____
- *P7. Owner and Address: Unknown
- *P8. Recorded by: (Name, affiliation, and address) Daniel Ballester, CRM TECH, 1016 East Cooley Drive, Suites A/B, Colton, CA 92324
- *P9. Date Recorded: April 24, 2007
- *P10. Survey Type: (Describe) Intensive-level survey for CEQA-compliance purpose
- *P11. Report Citation: (Cite survey report and other sources, or enter "none.") Josh Smallwood, Mariam Dahdul, Daniel Ballester, and Laura H. Shaker (2007): Historical/Archaeological Resources Survey Report: Tentative Tract Map No. 33626, City of Moreno Valley, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

Attachments: None Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Resource Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List): _____

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # 33-15937

Trinomial CA-RIV-7284/H

ARCHAEOLOGICAL SITE RECORD

Page 2 of 4

*Resource Name or # (Assigned by recorder) CRM TECH 2060-1

- A1. Dimensions: a. Length 140 m (E-W) b. Width 130 m (N-S)
Method of Measurement: Paced Taped Visual estimate Other: Range-finder
Method of Determination (Check any that apply.): Artifacts Features Soil Vegetation
 Topography Cut bank Animal burrow Excavation Property boundary Other (Explain):
Reliability of Determination: High Medium Low Explain:
Limitations (Check any that apply): Restricted access Paved/built over Site limits incompletely defined
 Disturbances Vegetation Other (Explain):
- A2. Depth: None Unknown Method of Determination:
- *A3. Human Remains: Present Absent Possible Unknown (Explain):
- *A4. Features: (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.) See item P3a.
- *A5. Cultural Constituents: (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.) See item P3a.
- *A6. Were Specimens Collected? No Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)
- *A7. Site Condition: Good Fair Poor (Describe disturbances):
- *A8. Nearest Water (Type, distance, and direction): The site is located on a low ridge near the confluence of two intermittent drainages. Several springs are located in the immediate vicinity, along the base of the Box Springs Mountains.
- *A9. Elevation: Approximately 1,640-1,720 feet above mean sea level
- A10. Environmental Setting: (Describe vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.): The vegetation noted in the vicinity of the site includes eucalyptus, pepper, sycamore, *Encelia* sp., poison oak, and wild mustard. The terrain in the area is nearly level, but inclines to the east towards the western slope of the Box Springs Mountains.
- A11. Historical Information: A building was known to be present at this location at least by the 1890s, and may have survived into the recent decades. The area was included in a homestead patent issued to Cecil R.G. Webbe, an early settler in the Box Springs area, in the early 1880s.
- *A12. Age: Prehistoric Protohistoric 1542-1769 1769-1848 1848-1880 1880-1914 1914-1945
 Post 1945 Undetermined Describe position in regional prehistoric chronology or factual historic dates if known:
- A13. Interpretations: (Discuss scientific, interpretive, ethnic, and other values of site, if known) The site is situated in an area where the traditional territories of three Native American groups overlapped: the Serrano, the Luiseño, and the Gabrielino. The bedrock milling features may have been used to process vegetal and/or animal resources that were gathered/hunted from the surrounding area. The historic-period remains may be associated with a late 19th century or early to mid-20th century homestead.
- A14. Remarks: The historical significance of the site cannot be determined without further archaeological investigations, including subsurface excavations.
- A15. References: (Documents, informants, maps, and other references.) See Item P11.
- A16. Photographs: (List subjects, direction of view, and accession numbers or attach a Photograph Record.)
Original Media/Negatives Kept at: CRM TECH, 41016 East Cooley Drive, Suites A/B, Colton, CA 92324
- *A17. Form Prepared by: John J. Eddy Date: May 3, 2007
Affiliation and Address: CRM TECH, 1016 East Cooley Drive, Suites A/B, Colton, CA 92324

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 33-15937

HRI # _____

Trinomial CA-RIV-7284/H

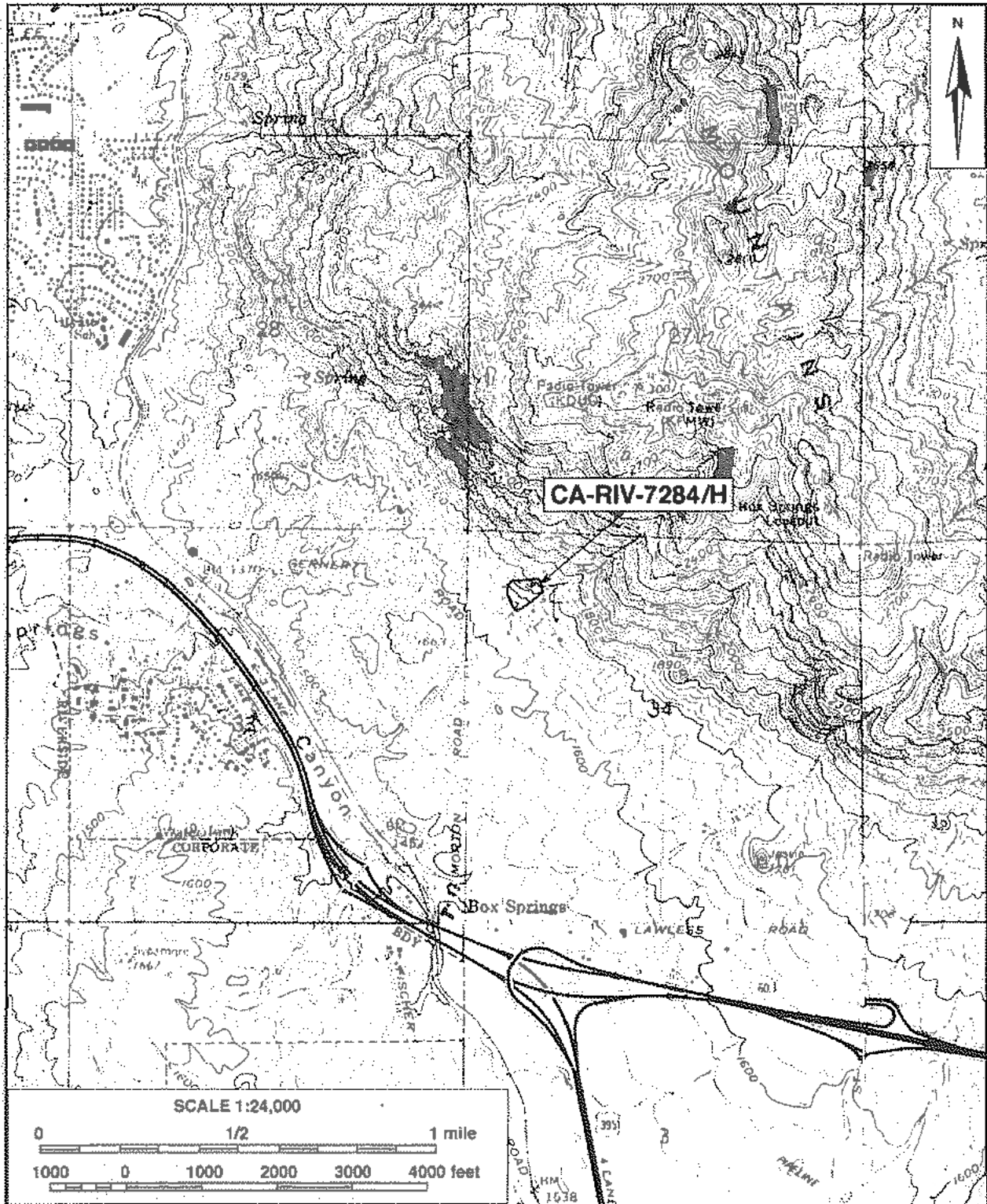
Page 3 of 4

*Resource Name or # (Assigned by recorder) CRM TECH 2060-1

*Map Name: Riverside East, Calif.

*Scale: 1:24,000

*Date of Map: 1980



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

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(Confidential)

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

State of California--The Resources Agency
 DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 33-15938
 HRI # _____
 Trinomial CA-RIV-7285
 NRHP Status Code 7

Other Listings _____
 Review Code _____ Reviewer _____ Date _____

Page 1 of 4 *Resource Name or # (Assigned by recorder) CRM TECH 2060-2

P1. Other Identifier: _____
 *P2. Location: Not for Publication Unrestricted *a. County Riverside
 and (P2b and P2c or P2d. Attach a Location Map as necessary.)
 *b. USGS 7.5' Quad Riverside East, Calif. Date 1980
T2S; R4E; NE 1/4 of NW 1/4 of NW 1/4 of Sec 34; S.B.B.M.
 Elevation: Approximately 1,740 feet above mean sea level
 c. Address N/A City Moreno Valley Zip _____
 d. UTM: (Give more than one for large and/or linear resources) Zone 11; 473,033 mE/ 3,757,468 mN
 UTM Derivation: USGS Quad GPS; NAD 1927
 e. Other Locational Data: (e.g., parcel #, directions to resource, etc., as appropriate) The site is located approximately 1,600 feet east of Gernert Road and 1,040 feet north of Frankhale Road.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) The site consists of two bedrock milling features situated near the base of the Box Springs Mountains. A total of three milling slicks are found on the bedrock surfaces.

*P3b. Resource Attributes: (List attributes and codes) AP4: Bedrock milling features
 *P4. Resources Present: Building Structure Object Site District Element of District
 Isolate Other

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.) _____
 P5b. Description of Photo: (view, date, accession #) _____
 *P6. Date Constructed/Age and Sources: Historic Prehistoric Both _____
 *P7. Owner and Address: Unknown

*P8. Recorded by: (Name, affiliation, and address) Daniel Ballester, CRM TECH, 1016 East Cooley Drive, Suites A/B, Colton, CA 92324

*P9. Date Recorded: April 24, 2007

*P10. Survey Type: (Describe) Intensive-level survey for CEQA-compliance purpose

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Josh Smallwood, Mariam Dahdul, Daniel Ballester, and Laura H. Shaker (2007): Historical/Archaeological Resources Survey Report: Tentative Tract Map No. 33626, City of Moreno Valley, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

*Attachments: None Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Resource Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List): _____

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # 33-15938
Trinomial CA-RIV-7285

ARCHAEOLOGICAL SITE RECORD

Page 2 of 4

*Resource Name or # (Assigned by recorder) CRM TECH 2060-2

- A1. Dimensions: a. Length 33 m (N-S) b. Width 8 m (E-W)
Method of Measurement: Paced Taped Visual estimate Other: Range-finder
Method of Determination (Check any that apply.): Artifacts Features Soil Vegetation
Topography Cut bank Animal burrow Excavation Property boundary Other (Explain):
Reliability of Determination: High Medium Low Explain:
Limitations (Check any that apply): Restricted access Paved/built over Site limits incompletely defined
Disturbances Vegetation Other (Explain):
- A2. Depth: None Unknown Method of Determination:
- *A3. Human Remains: Present Absent Possible Unknown (Explain):
- *A4. Features: (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.) Two bedrock-milling features, designated Features 1 and 2, were recorded at the site. Feature 1 exhibited a single milling slick measuring 23 x 23 cm, while Feature 2 exhibited two milling slicks measuring 80 x 20 cm and 30 x 20 cm.
- *A5. Cultural Constituents: (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.) None.
- *A6. Were Specimens Collected? No Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)
- *A7. Site Condition: Good Fair Poor (Describe disturbances):
- *A8. Nearest Water (Type, distance, and direction): The site is adjacent to an intermittent drainage. Several springs are located in the immediate vicinity, along the base of the Box Springs Mountains.
- *A9. Elevation: Approximately 1,740 feet above mean sea level
- A10. Environmental Setting: (Describe vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.):
Vegetation in the site area consists predominately of *Encelia* sp. The terrain inclines steeply to the east towards the western slope of the Box Springs Mountains.
- A11. Historical Information:
- *A12. Age: Prehistoric Protohistoric 1542-1769 1769-1848 1848-1880 1880-1914 1914-1945
Post 1945 Undetermined Describe position in regional prehistoric chronology or factual historic dates if known:
- A13. Interpretations: (Discuss scientific, interpretive, ethnic, and other values of site, if known) The site is situated in an area where the traditional territories of three Native American groups overlapped: the Serrano, the Luiseño, and the Gabrielino. The bedrock milling features may have been used to process vegetal and/or animal resources that were gathered/hunted from the surrounding area.
- A14. Remarks: The historical significance of the site cannot be determined without further archaeological investigations, including subsurface excavations.
- A15. References: (Documents, informants, maps, and other references.): See Item P11.
- A16. Photographs: (List subjects, direction of view, and accession numbers or attach a Photograph Record.):
Original Media/Negatives Kept at: CRM TECH, 1016 East Cooley Drive, Suites A/B, Colton, CA 92324
- *A17. Form Prepared by: John J. Eddy Date: May 3, 2007
Affiliation and Address: CRM TECH, 1016 East Cooley Drive, Suites A/B, Colton, CA 92324

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # 33-15938

HRI #

LOCATION MAP

Trinomial CA-RIV-7285

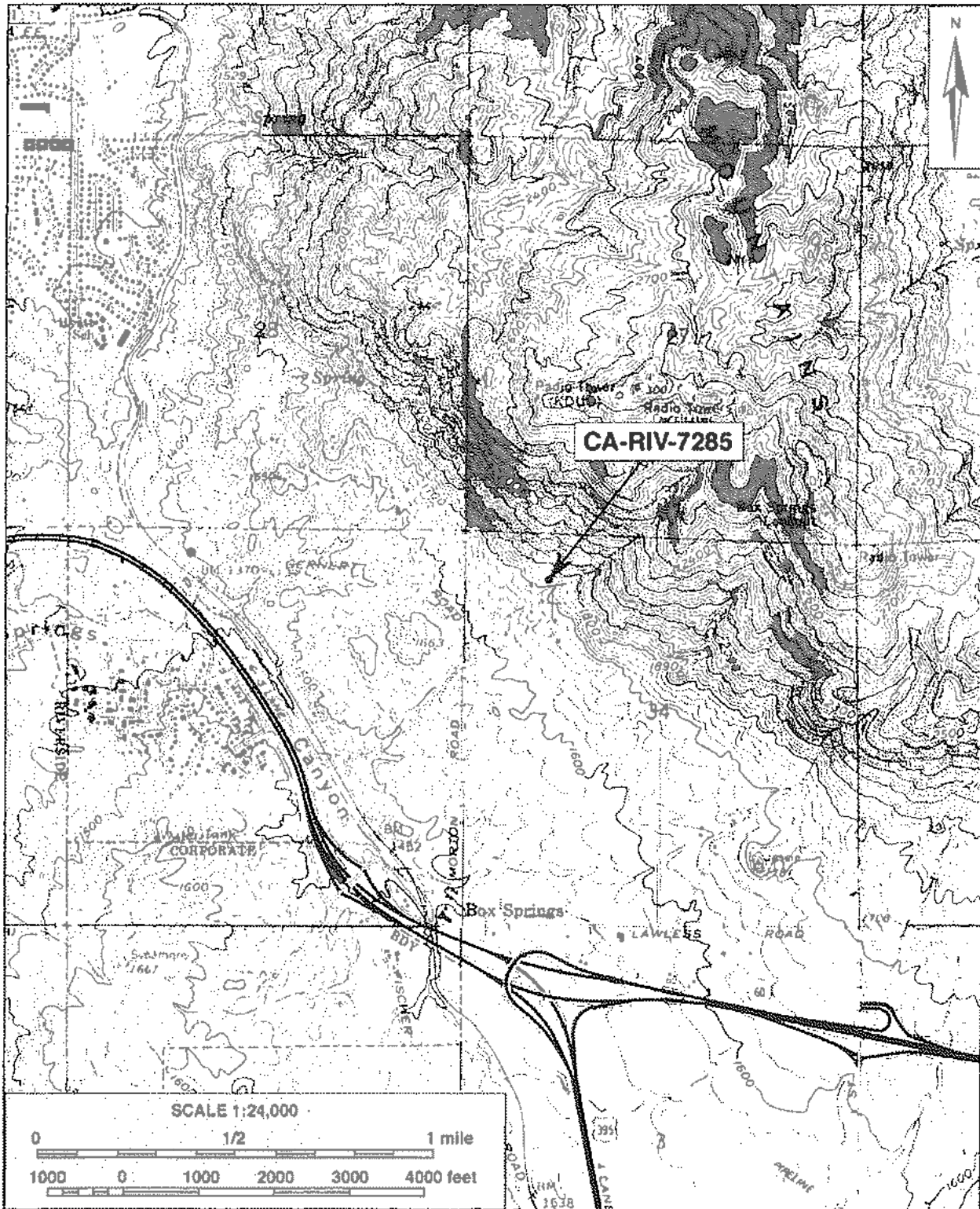
Page 3 of 4

*Resource Name or # (Assigned by recorder) CRM TECH 2060-2

*Map Name: Riverside East, Calif.

*Scale: 1:24,000

*Date of Map: 1980



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

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State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z

Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 of 2 *Resource Name or # (Assigned by recorder) Isolate 2060-1

P1. Other Identifier: _____
*P2. Location: Not for Publication Unrestricted *a. County Riverside
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
*b. USGS 7.5' Quad Riverside East, Calif. Date 1980
T2S; R4W; SE 1/4 of NW 1/4 of NW 1/4 of Sec 34; S.B.B.M.
Elevation: Approximately 1,640 feet above mean sea level
c. Address N/A City _____ Zip _____
d. UTM: (Give more than one for large and/or linear resources) Zone 11; 472,806 mE/ 3,757,379 mN
UTM Derivation: USGS Quad GPS (NAD 27)
e. Other Locational Data: (e.g., parcel #, directions to resource, etc., as appropriate) The isolate is located approximately 720 feet east of Gernert Road and 640 feet north of Jennings Court.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) The isolate consists of hand-held grinding stone that appears to have been used both as a mano and as a pestle
*P3b. Resource Attributes: (List attributes and codes) AP16. Other (isolated groundstone)
*P4. Resources Present: Building Structure Object Site District Element of District
 Isolate Other

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)
P5b. Description of Photo: (view, date, accession #) _____

*P6. Date Constructed/Age and Sources: Historic Prehistoric Both
*P7. Owner and Address: _____

*P8. Recorded by: (Name, affiliation, and address) Daniel Ballester, CRM TECH, 1016 East Cooley Drive, Suites A/B, Colton, CA 92324

*P9. Date Recorded: April 24, 2007
*P10. Survey Type: (Describe) Intensive-level survey for CEQA-compliance purpose

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Josh Smallwood, Mariam Dahdul, Daniel Ballester, and Laura H. Shaker (2007): Historical/Archaeological Resources Survey Report: Tentative Tract Map No. 33626, City of Moreno Valley, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

*Attachments: None Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Resource Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List): _____

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(Confidential)

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

From: Kay White <eickw@ucr.edu>
Sent: Tuesday, July 17, 2007 2:00 PM
To: crmtech@crmtech.us
Subject: Numbers

Mike/Tom: It is really a good thing that I retired. Maybe I should not have come back to work at all!!!! I gave you incorrect trinomials for this project. I have corrected them in blue below. Please correct your records. Sorry about this. kay

Josh: We did get these records and sent you numbers on May 10, 2007. Here they are again.

Hi John:

We have assigned the following primary numbers and trinomials to the records you recently submitted. Please submit one hard copy of each record complete with numbers on every page.

CRM TECH 2060-1/H = 33-15937 and CA-RIV-7284 *should be CA-RIV-8274*
CRM TECH 2060-2 = 33-15938 and CA-RIV-7285 *should be CA-RIV-8275*

Thanks.

kay

~~~~~  
Kay H. White  
Administrative Assistant  
Eastern Information Center  
c/o Department of Anthropology  
University of California  
Riverside, CA 92521-0418  
(951) 827-5745  
Fax (951) 827-5409  
~~~~~

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

KINCAID DEVELOPMENT PROJECT:
RESULTS OF AN ARCHAEOLOGICAL TEST PROGRAM AT
CA-RIV-7284/1 AND CA-RIV-7285
MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

8274

8275

By:

Jay K. Sander, M.A.
Principal Investigator

With contributions by:
Pamela Daly, M.S.

Prepared For:

KINCAID DEVELOPMENT
17611 Wood Road
Riverside, CA 92508

Prepared By:

CHAMBERS GROUP, INC.
302 Brookside Avenue
Redlands, CA 92373

July 2007

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Chambers Group®

RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
CA-RIV-7284/H AND CA-RIV-7285, MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

MANAGEMENT SUMMARY

A test program was completed at two archaeological sites as part of the proposed Kincaid Development Project of 36 acres identified as Tentative Tract 33626, Assessor's Parcel Number (APN) 256-150-001, Moreno Valley, Riverside County, California. The two sites, CA-RIV-7284/H (33-15937) and CA-RIV-7285 (33-15938), were discovered in 2007 during the cultural resources survey for the Kincaid Development project. The purpose of the test program was to evaluate the sites for eligibility for the California Register of Historical Resources. The test program at each site consisted of recording of surface cultural material, shovel test pits (STPs), and two 1-by-1-meter excavation units at CA-RIV-7284. No cultural material was found subsurface at either CA-RIV-7284/H or CA-RIV-7285. Because of the lack of subsurface cultural material that could be used to address research topics, the two sites are evaluated as not eligible for the California Register of Historical Resources. Therefore, because both are evaluated as not eligible, mitigation through data recovery is not necessary. However, grading monitoring by a qualified archaeologist is recommended.

The trinomials in this report are incorrect, however, the primary numbers are correct. They should be:

33-15937 (CA-RIV-8274 not CA-RIV-7284)

33-15938 (CA-RIV-8275 not CA-RIV-7285)

EIC (8/15/08)

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
 CA-RIV-7284/H AND CA-RIV-7285, MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

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RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
CA-RIV-7284/H AND CA-RIV-7285, MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

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RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
CA-RIV-7284/H AND CA-RIV-7285, MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

SECTION 1 - INTRODUCTION

The Kincaid Development project involves work on approximately 36 acres of vacant land in the vicinity of the southwestern edge of the Box Springs Mountains in the city of Moreno Valley in Riverside County, California. Kincaid Development retained CRM Tech to perform a records/literature review of cultural resources known to exist in the project area as well as an intensive survey to identify any previously unrecorded cultural resources that could be impacted by the project (Smallwood and Dahdul 2007). As a result of the field survey, two prehistoric sites were documented and temporarily designated as CRM Tech 2060-1 and CRM Tech 2060-2 (Figure 1). Later, CRM Tech 2060-1 was formally designated as CA-RIV-7284/H (33-15937) and CRM Tech 2060-2 as CA-RIV-7285 (33-15938). A test program was subsequently performed by Chambers Group, Inc. (Chambers Group) to evaluate the eligibility of the two sites for the California Register of Historical Resources (CRHR). This report presents the results of archaeological testing at the two sites and an evaluation of the eligibility of the two sites for the CRHR.

1.1 LOCATION AND ENVIRONMENTAL SETTING

The study area of the Kincaid project is located on privately owned land on the southwestern edge of the Box Springs Mountains, north of Moreno Valley. The Assessor's Parcel Number (APN) is 256-150-001. It is within Section 34 of Township 2 South, Range 4 West, as depicted on the U.S. Geological Survey (USGS) 7.5-minute Riverside East topographic quadrangle. The area ranges in elevation from approximately 1,650 to 1,7400 feet above mean sea level.

The project area is situated on a low ridge near the confluence of two intermittent drainages. Slope angles vary from level to approximately 45 degrees on some of the more severe hills. There are several springs within the immediate vicinity, along the base of the Box Springs Mountains. The dominant native vegetation species is brittlebush (*Encelia* sp.). Non-native species observed include eucalyptus, pepper tree, sycamore, and wild mustard. Bedrock outcrops of granite occur throughout the area. The project area has been disturbed by erosion and by the construction, maintenance, and subsequent demolition of a small residence that formerly stood on the property.

CA-RIV-7284/H consists of both prehistoric and historic-period components. It is located approximately 1,280 feet east of Gernert Road and 480 feet north of Jennings Court. The prehistoric component of the site is comprised of eight bedrock milling features with 8 grinding surfaces (slicks) on them. Two manos were found on the surface of the site in association to the bedrock features (Smallwood and Dahdul 2007:11).

The historic-period component of the site is comprised of structural features, an electric well pump, and a trash scatter that is dominated by 1940–1960s refuse. Also noted were a few fragments of sun-colored amethyst glass which dates to between the late 1800s and early 1900s. The structural features include dry-lain rock alignments, a concrete and rock wall built into the side of a hill, two small concrete slabs, and a concrete cistern surrounding a natural spring.

CA-RIV-7285 consists of two bedrock milling features about 98 feet apart with three grinding slicks. The site is on a slope above CA-RIV-7284/H, located 1,600 feet east of Gernert Road and 1,040 feet north of Frankhale Road. No artifacts were found on the surface of the site.

Both of these sites are situated on gradual slopes that may have contained buried cultural deposits covered by erosion and the build-up of alluvium (Smallwood and Dahdul 2007:13). For this reason, archaeological testing of the site was recommended. The goal of testing was to determine whether there was intact subsurface archaeological deposits that may contribute to the significance of this cultural resource.

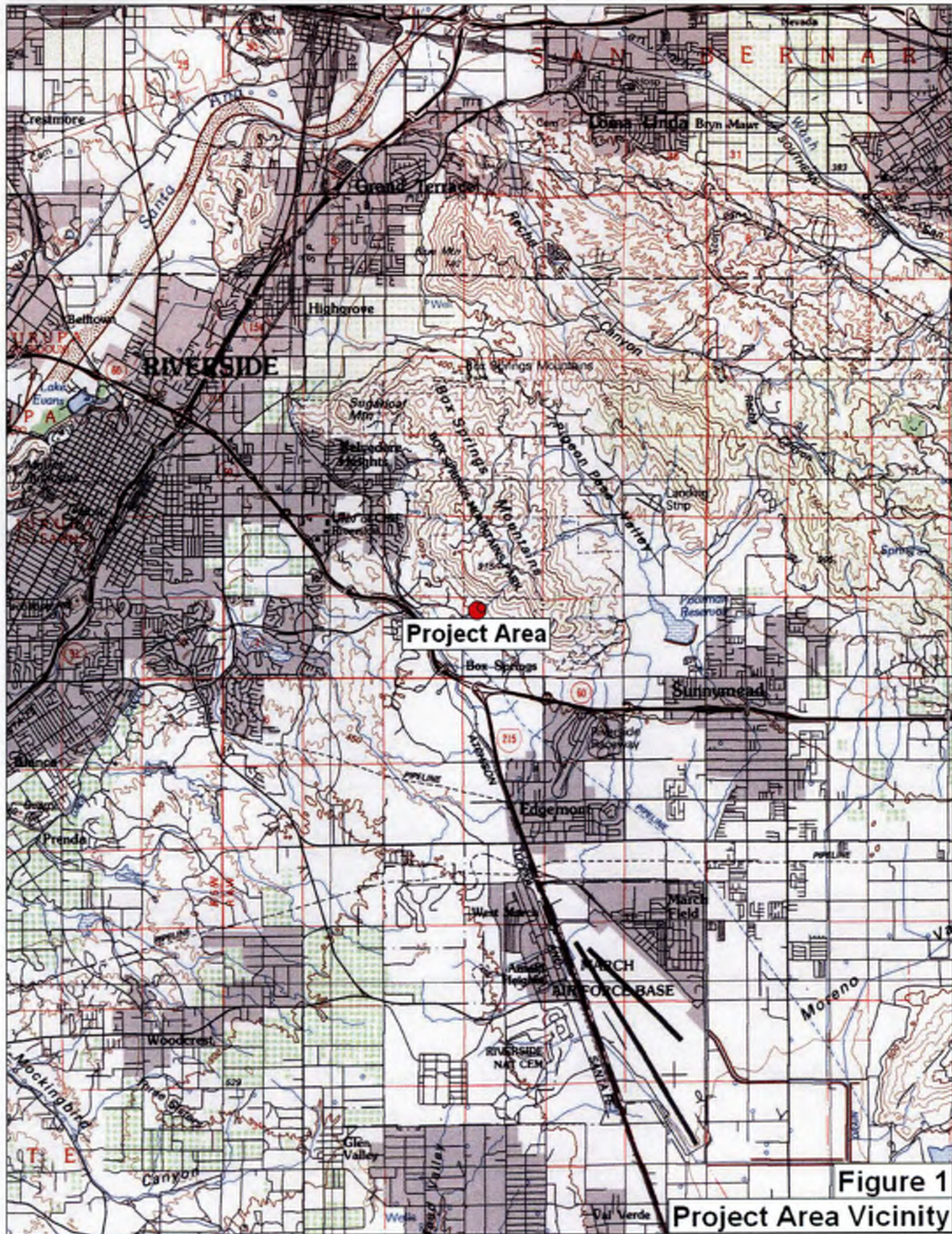
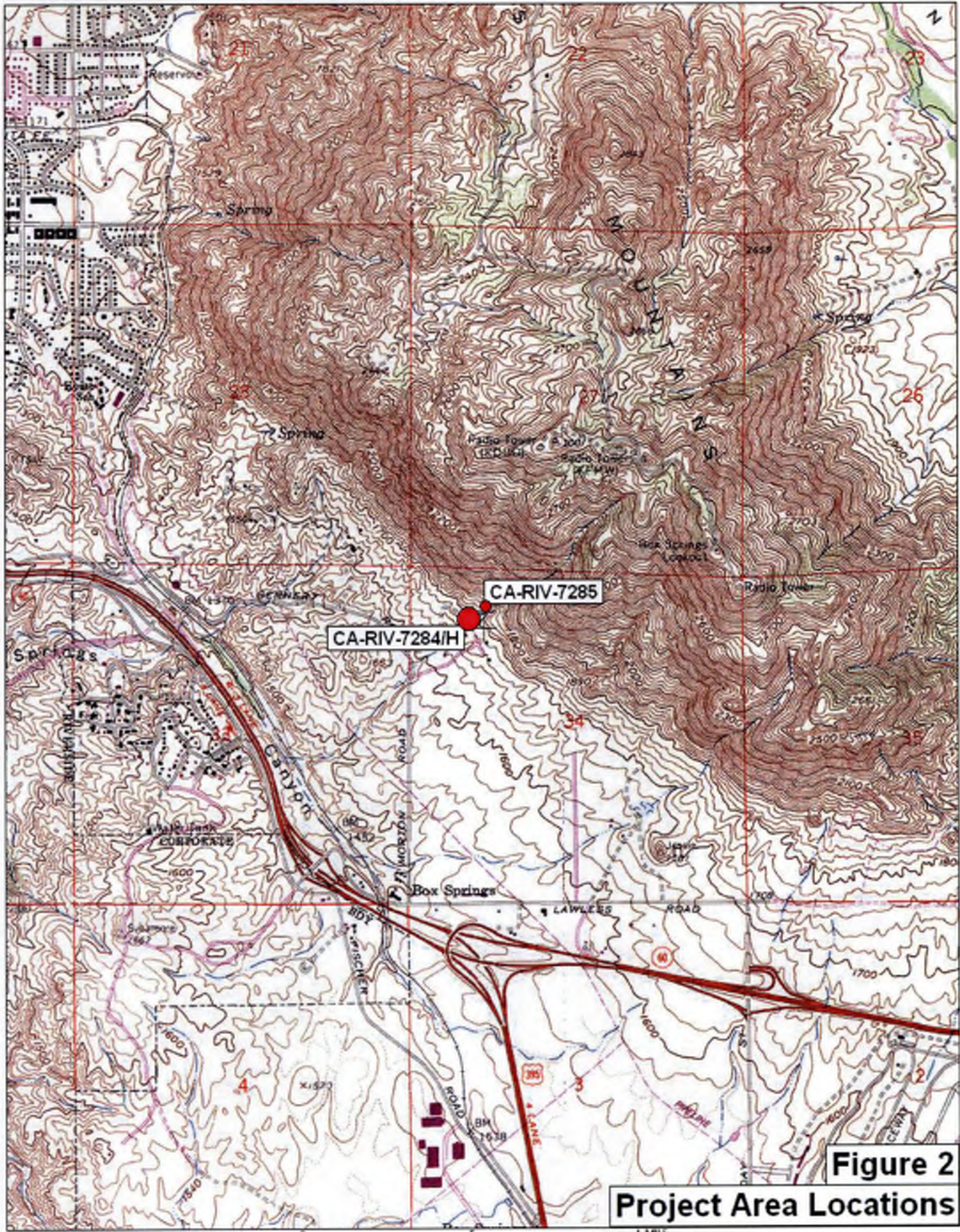


Figure 1
Project Area Vicinity

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
CA-RIV-7284/H AND CA-RIV-7285, MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

1.2 PREHISTORIC AND HISTORIC BACKGROUND

1.2.1 Prehistory

At this time, no chronological synthesis has been developed specifically for the interior valleys and mountains that include the region surrounding the current project area. Instead, researchers have generally come to rely on typological cross-dating from either the coastal or desert sequences (McDougall et al 2003). For this reason, a brief outline of generally accepted Southern California chronology (both desert and coastal combined) is presented below.

It is generally believed that human occupation of southern California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 and 6,000 years BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Animals that were hunted probably consisted mostly of large species still alive today. Bones of extinct species have been found, but cannot definitely be associated with human artifacts. Although small animal bones and plant grinding tools are rarely found within archaeological sites of this period, small game and vegetal foods were probably exploited on a limited basis. A lack of deep cultural deposits from this period suggests that most groups included only small numbers of individuals who did not often stay in one place for extended periods (Wallace 1978). There is some evidence to suggest that there were groups during this time period that did have a semi sedentary lifestyle along the coast (Koerper et al 1991), but there only two sites of this type in the inland regions of western riverside county (Grenda 1997; Horne et al n.d.)

Around 6,000 years BP, there was a shift in focus from hunting towards a greater reliance on vegetal resources. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter. This period, which extended until around 3,000 years BP, is sometimes referred to as the "Millingstone Horizon" (Wallace 1978). Projectile points are found in archaeological sites from this period, but they are far fewer in number than from sites dating to before 6,000 years BP. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period (Wallace 1978).

In sites dating to after about 3,000 years BP, archaeological evidence indicates that reliance on both plant gathering and hunting continued as in the previous period, with more specialized adaptation to particular environments. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Flaked stone tools became more refined and specialized, and bone tools were more common. During this period, new peoples from the Great Basin began entering southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. The exact time of their entry into the region is not known; however, they were present in southern California during the final phase of prehistory. During this period, known as the "Late Period," population densities were higher than before and settlement became concentrated in villages and communities along the coast and interior valleys (Erlandson 1994; McCawley 1996). Regional subcultures also started to develop, each with its own geographical territory and language or dialect (Kroeber 1925; McCawley 1996; Moratto 1984). These were most likely the basis for the groups encountered by the first Europeans during the eighteenth century (Wallace 1978). Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction (Erlandson 1994). The introduction of the bow and arrow into the region sometime around 1,500 to 1,000 years BP is indicated by the presence of small projectile points (Moratto 1984).

1.2.2 Ethnohistory

The project area is located in a disputed region known to have been utilized by three different Native American Groups: the Cahuilla of the deserts and San Bernardino Valley, the Luiseno of the Perris-Lake Elsinore region, and the Serrano of the San Bernardino Mountains area. All three groups probably utilized the region at times; therefore, each group is described in more detail below.

RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
CA-RIV-7284/H AND CA-RIV-7285, MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

Cahuilla

Cahuilla territory was bounded on the north by the San Bernardino Mountains, on the east by the Orocopia Mountains, on the west by the Santa Ana River, the San Jacinto Plain and the eastern slope of the Palomar Mountains, and on the south by Borrego Springs and the Chocolate Mountains (Bean 1978).

The diversity of the territory provided the Cahuilla with a variety of foods. It has been estimated that the Cahuilla exploited more than 500 native and non-native plants (Bean and Saubel 1972). Acorns, mesquite, screw beans, piñon nuts, and various types of cacti were used. A variety of seeds, wild fruits and berries, tubers, roots, and greens were also a part of the Cahuilla diet. A marginal agricultural existence provided corn, beans, squashes, and melons. Rabbits and small animals were also hunted to supplement the diet. During high stands of Ancient Lake Cahuilla, fish, migratory birds, and marshland vegetation were also taken for sustenance and utilitarian purposes (Bean 1978).

Structures within permanent villages ranged from small brush shelters to dome-shaped or rectangular dwellings. Villages were situated near water sources, in the canyons near springs, or on alluvial fans at man-made walk-in wells (Bean 1972). Mortuary practices entailed cremation of the dead. Upon a person's death, the body was bound or put inside a net and then taken to a place where the body would be cremated. Secondary interments also occurred. A mourning ceremony took place about a year after a person's death. During this ceremony, an image of the deceased was burned along with other goods (Lando and Modesto 1977; Strong 1929).

Precontact Cahuilla population has been estimated as low as 2,500 to as high as 10,000. At the time of first contact with Europeans, around 1774, the Cahuilla numbered approximately 6,000. Although they were the first to come into contact with the Cahuilla, the Spanish had little to do with those of the desert region. Some of the Cahuilla who lived in the plains and valleys west of the desert and mountains, however, were missionized through the *asistencia* located near present day San Bernardino. Cahuilla political, economic, and religious autonomy was maintained until 1877 when the United States government established Indian reservations in the region. Protestant missionaries came into the area to convert and civilize the Native American population. During this era, traditional cultural practices, such as cremation of the dead, were prohibited. Today, the Cahuilla reside on eight separate reservations in southern California, located from Banning in the north to Warner Springs in the south and from Hemet in the west to Thermal in the east (Bean 1978).

Luisefño

The project area is located in the territory known ethnographically to have been occupied by the Luisefño, a Takic-speaking people. The Spanish gave the name Luisefño to the native groups who were living in the area under influence of Mission San Luis Rey (Bean and Shipek 1978).

The Luisefño lived in sedentary and autonomous village groups, each with specific subsistence territories encompassing hunting, collecting, and fishing areas. Villages were typically located in valley bottoms, along streams, or along coastal strands near mountain ranges where water was available and village defense was possible. Inland populations had access to fishing and gathering sites on the coast, which they used during the winter months (Bean and Shipek 1978).

Luisefño subsistence was centered on the gathering of acorns, seeds, greens, bulbs, roots, berries, and other vegetal foods. This was supplemented with hunting mammals such as deer, antelope, rabbit, woodrat, ground squirrels, and mice, as well as quail, doves, ducks, and other birds. Bands along the coast also exploited marine resources, such as sea mammals, fish, crustaceans, and mollusks. Inland, trout and other fish were taken from mountain streams (Bean and Shipek 1978).

Hunting was done both individually and by organized groups. Tool technology for food acquisition, storage, and preparation reflects the size and quantity of items procured. Small game was hunted with the use of curved throwing sticks, nets, slings, or traps. Bows and arrows were used for hunting larger game. Dugout canoes, basketry fish traps, and shell hooks were used for near-shore ocean fishing. Coiled and twined

RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
CA-RIV-7284/H AND CA-RIV-7285, MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

baskets were made for food gathering, preparation, storing, and serving. Other items used for food processing included large shallow trays for winnowing chaff from grain, ceramic and basketry storage containers, manos and metates for grinding seeds, and ceramic jars for cooking (Bean and Shipek 1978).

Villages had hereditary chiefs who controlled religious, economic, and territorial activities (Bean and Shipek 1978; Boscana 1933). An advisory council of ritual specialists and shamans was consulted for environmental and other knowledge. Large villages located along the coast or in inland valleys may have had more complex social and political structures than settlements controlling smaller territories (Bean and Shipek 1978; Strong 1929).

Most Luiseño villages contained a ceremonial structure enclosed by circular fencing located near the center of the village. Houses were semisubterranean and thatched with locally available brush, bark, or reeds. Earth-covered semisubterranean sweathouses were also common and were used for purification and curing rituals (Bean and Shipek 1978).

The Luiseño first came into contact with Europeans in 1769 when the expedition led by Gaspar de Portolá arrived in their territory. That same year, the San Diego Mission was established just to the south, followed by the San Juan Capistrano Mission in 1776 and the San Luis Rey Mission in 1798. Poor living conditions at the missions and introduced European diseases led to a rapid decline of the Luiseño population. Following the Mission Period (1769-1834), Luiseño Indians scattered throughout southern California. Some became serfs on the Mexican ranchos, others moved to newly founded pueblos established for them, some sought refuge among inland groups, and a few managed to acquire land grants. Later, many moved to or were forced onto reservations. Although many of their cultural traditions had been suppressed during the Mission Period, the Luiseño were successful at retaining their language and certain rituals and ceremonies. Starting in the 1970s, there was a revival of interest in the Luiseño language and classes were organized. Since then, traditional games, songs, and dances have been performed, traditional foods have been gathered and prepared, and traditional medicines and curing procedures have been practiced (Bean and Shipek 1978).

Serrano

Ethnographic accounts indicate that the Serrano were the dominant group of Native Americans in the region that includes the project area. The Serrano occupied an area in and around the San Bernardino Mountains between approximately 1,500 and 11,000 feet above mean sea level. Their territory extended west into the Cajon Pass, east as far as Twentynine Palms, north to Victorville, and south to the Yucaipa Valley. The Serrano were mainly hunters and gatherers who occasionally fished. Game that was hunted included mountain sheep, deer, antelope, rabbits, small rodents, and various birds, particularly quail. Vegetable staples consisted of acorns, pifon nuts, bulbs and tubers, shoots and roots, berries, mesquite, barrel cacti, and Joshua tree (Bean and Smith 1978a).

A variety of materials were used for hunting, gathering, and processing food, as well as for shelter, clothing, and luxury items. Shells, wood, bone, stone, plant materials, and animal skins and feathers were used for making baskets, pottery, blankets, mats, nets, bags and pouches, cordage, awls, bows, arrows, drills, stone pipes, musical instruments, and clothing (Bean and Smith 1978a).

Settlement locations were determined by water availability, and most Serranos lived in small villages near water sources. Houses and ramadas were round and constructed of poles covered with bark and tule mats (Kroeber 1925). Most Serrano villages also had a ceremonial house used as a religious center. Other structures within the village might include granaries and sweathouses (Bean and Smith 1978a).

The Serrano were loosely organized along patrilineal lines and associated themselves with either the *Tukum* (wildcat) or the *Wahilyam* (coyote) moiety. Organization of individual bands of Serrano was considered by Kroeber (1925) to be similar to political groups. Tribes, as opposed to bands, were larger in numbers, and were distinguished from each other by having distinct dialects. Unlike bands, tribes often had names that were more than merely a designation for the place where they lived (Kroeber 1925).

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Partly due to their mountainous inland territory, contact between Serrano and European-Americans was minimal prior to the early 1800s. In 1819, a *Capilla* (chapel) was established near present-day Redlands and was used to help relocate many Serrano to Mission San Gabriel. However, small groups of Serrano remained in the area northeast of the San Geronio Pass and were able to preserve some of their native culture. Today, most Serrano live either on the Morongo or San Manuel reservations (Bean and Smith 1978a).

Tongva (Gabrielino)

Ethnographic accounts of Native Americans indicate that the Tongva (or Gabrielino) once occupied the region that encompasses the project area. At the time of contact with Europeans, the Tongva were the main occupants of the southern Channel Islands, the Los Angeles basin, much of Orange County, and extended as far east as the western San Bernardino Valley. The term "Gabrielino" came from the group's association with Mission San Gabriel Arcangel, established in 1771. However, today the group prefers to be known by their ancestral name, Tongva. The Tongva are believed to have been one of the most populous and wealthy Native American tribes in southern California prior to European contact, second only to the Chumash (Bean and Smith 1978b; McCawley 1996; Moratto 1984).

The Tongva occupied numerous villages with populations ranging from 50 to 200 inhabitants. Residential structures within the villages were domed, circular, and made from thatched tule or other available wood. Kinship groups, with each group composed of several related families who together owned hunting and gathering territories, organized Tongva society. Settlement patterns varied according to the availability of floral and faunal resources (Bean and Smith 1978b; McCawley 1996; Miller 1991).

Vegetal staples consisted of acorns, chia, seeds, piñon nuts, sage, cacti, roots, and bulbs. Animals hunted included deer, antelope, coyote, rabbits, squirrels, rodents, birds, and snakes. The Tongva also fished (Bean and Smith 1978b; McCawley 1996; Miller 1991).

By the late 18th century, Tongva population had significantly dwindled due to introduced diseases and dietary deficiencies. Tongva communities near the missions disintegrated as individuals succumbed to Spanish control, fled the region, or died. Later, many of the Tongva fell into indentured servitude to Anglo-Americans. By the early 1900s, few Tongva people had survived and much of their culture had been lost (Bean and Smith 1978b; McCawley 1996; Miller 1991). However, in the 1970s, a revival of the Tongva culture began which continues today with growing interest and support.

1.2.3 History

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions (including the San Bernardino Asistencia, built around 1830 as a branch of the San Gabriel Mission) and 4 presidios were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the majority of the California region during this period. The purpose of the missions was primarily Indian control, along with economic support to the presidios, forced assimilation of the Indians to Hispanic society, and conversion of the native population to Spanish Catholicism (Castillo 1978; Cleland 1941).

The Mexican Period (1821 to 1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, the vast land holdings of the missions in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers (Castillo 1978).

In 1848, the Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the beginning of the American Period (1848 to present). The discovery of gold the same year initiated the 1849 California Gold Rush, bringing thousands of miners and settlers to California, most of whom settled in the north. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by

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cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s as a result of severe floods and droughts, which put many ranchos into bankruptcy (Castillo 1978; Cleland 1941).

1.2.4 Project Area History

In 1850, California became a state and the large Spanish land grant of San Jacinto Nuevo y Potrero became public land, developed by ranchers and traveled over by John Butterfield's legendary but short-lived Overland Mail Company. His Tucson-to-San Francisco stage, via San Diego and Los Angeles, opened up the Temescal approach to Los Angeles, passing through the oak groves of what is now Perris Valley, continuing through what is now Moreno Valley, and over Reche Canyon into Redlands.

In 1883, Frank E. Brown formed the Bear Valley Land and Water Company. Brown ("Brown" is "Moreno" in Spanish) built a dam at Bear Valley in the San Bernardino Mountains and contracted to provide water to the tiny, and new communities of Moreno and Alessandro.

Histories of the Moreno Valley area state that when water was piped from Bear Dam in Big Bear Lake to the Moreno region in 1891 by the Bear Valley and Alessandro Development Co., land was sold for ten times the price of what it had been just months before and there was a veritable "land boom" as the population reached 500 residents. By 1893, Moreno had four brick buildings, a weekly newspaper, a \$5,000 school building, a hotel, livery stable, two churches, a pharmacy and a literary society. Groves of orange trees, olives, apricots, peaches and garden crops were established around farmsteads that had been built in the region. The water stopped flowing in the early 1900s.

As a result of the loss of water delivery, many of the over 500 residents of Moreno Valley were forced to leave the area in search of a more livable environment. The more expensive homes were removed from their foundations, and moved in their entirety by steam-powered tractors. Many of them were relocated to the city of Riverside. Others, stolen during the owner's absence, were relocated to parts unknown. By 1901, few people resided in the Moreno Valley, and those who remained turned primarily to the dry farming of hay, grain, and grapes. Mr. Brown had lost his dream, and the valley named after him remained as a reminder of the regions vulnerability to such simple needs as water.

SECTION 2 - OBJECTIVES AND METHODS

2.1 OBJECTIVES

As stated in the Introduction, the purpose of the test programs at CA-RIV-7284/H and CA-RIV-7285 was to determine whether the sites were significant and, if so, to obtain information necessary to plan a data recovery program, if avoidance is not feasible. The CEQA guidelines (California Code of Regulations, Section 15064.5) state that a project that causes a substantial adverse change in the significance of an historical resource is considered to have a significant effect on the environment unless mitigated. Historical resources are defined as buildings, structures, districts, sites, or objects that are eligible for the California Register of Historical Resources. The eligibility criteria for the California Register are similar to those for the National Register of Historic Places. CRHR Criterion D states that eligible sites are those that have "yielded, or may be likely to yield, information important in prehistory or history." In practice, this means that sites that have the potential to yield data relevant to important research questions are eligible. The CEQA guidelines state that the CEQA lead agency makes the determination of eligibility for the California Register based on the results of the test program.

2.1.1 Research Topics

Given the lack of previous problem-oriented research for the Late Period in this area of Riverside County, not enough information is available to formulate specific research questions. However, the sites can be considered eligible for the California Register if they have the potential to yield significant data with which to address at least some of the following research topics:

- Site type and activities
- Internal site organization
- Subsistence
- Chronology
- Trade and exchange

Site Type and Activities

Beginning in the Millingstone Period there appears to have been a shift from relatively mobile groups to that of increasingly formal territories with a seasonal round (Altschul and Grenda 2002). By the Late Period there were, perhaps, four site types: base villages, summer villages, temporary resource procurement camps, and bedrock mortar grinding stations with no evidence for overnight stays. In order to determine site type and reconstruct some of the activities performed at sites, the variety and density of artifacts and subsistence remains and the number and variety of features will be investigated.

Internal Site Organization

Different activities may have been performed in different areas within a site. Were male and female activities performed in different areas of the site? Were ceremonial activities segregated from subsistence tasks? Internal spatial organization is studied by plotting the spatial distribution of artifact categories and types, subsistence remains, and features. If a site is small and there are few categories that do not vary spatially, this domain cannot be addressed.

Subsistence

Subsistence refers to the foods consumed and how they were procured and processed. What animal and plant foods were processed and consumed at the site? Was there specialization in a particular kind of food? Is there evidence for intensification of food production? Specialization would be indicated by large numbers of the remains of a single species. Intensification is indicated by reliance on resources that require greater amounts of labor to procure or process. These are added to the diet when population increases and procurement activities are limited to a local territory. To address questions about

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subsistence, a reliable sample of plant or animal subsistence remains is necessary.

Chronology

It has been assumed that sites in this area were occupied during the Late Period by the Luiseno, Serrano, or the Tongva. The period of occupation can be addressed if sufficient charcoal is present for radiocarbon dating.

Trade and Exchange

The occupants of sites in the Inland Empire had access to items from other regions. These items included obsidian from the northeast and southeast interior, and shell beads from the California coast and possibly from the Gulf of California. The source of obsidian can be determined through geochemical tests. It can be ascertained whether *Olivella* shell beads came from the California coast or the Gulf of California by determining whether they were manufactured from *Olivella biplicata* shells (California coast) or *Olivella dama* shells (Sea of Cortes).

Summary

The results from the test program at each site will not directly address these research domains, but the test program results will be used to evaluate whether the site has the potential to yield data with which to address them during a data recovery program. If so, the site will be considered eligible for the California Register. The test program is also designed to provide information on subsurface site boundaries, the integrity of subsurface deposits, and the internal distribution of concentrations of subsurface cultural material. This information is necessary to adequately plan a data recovery program if one should become necessary.

2.2 METHODS

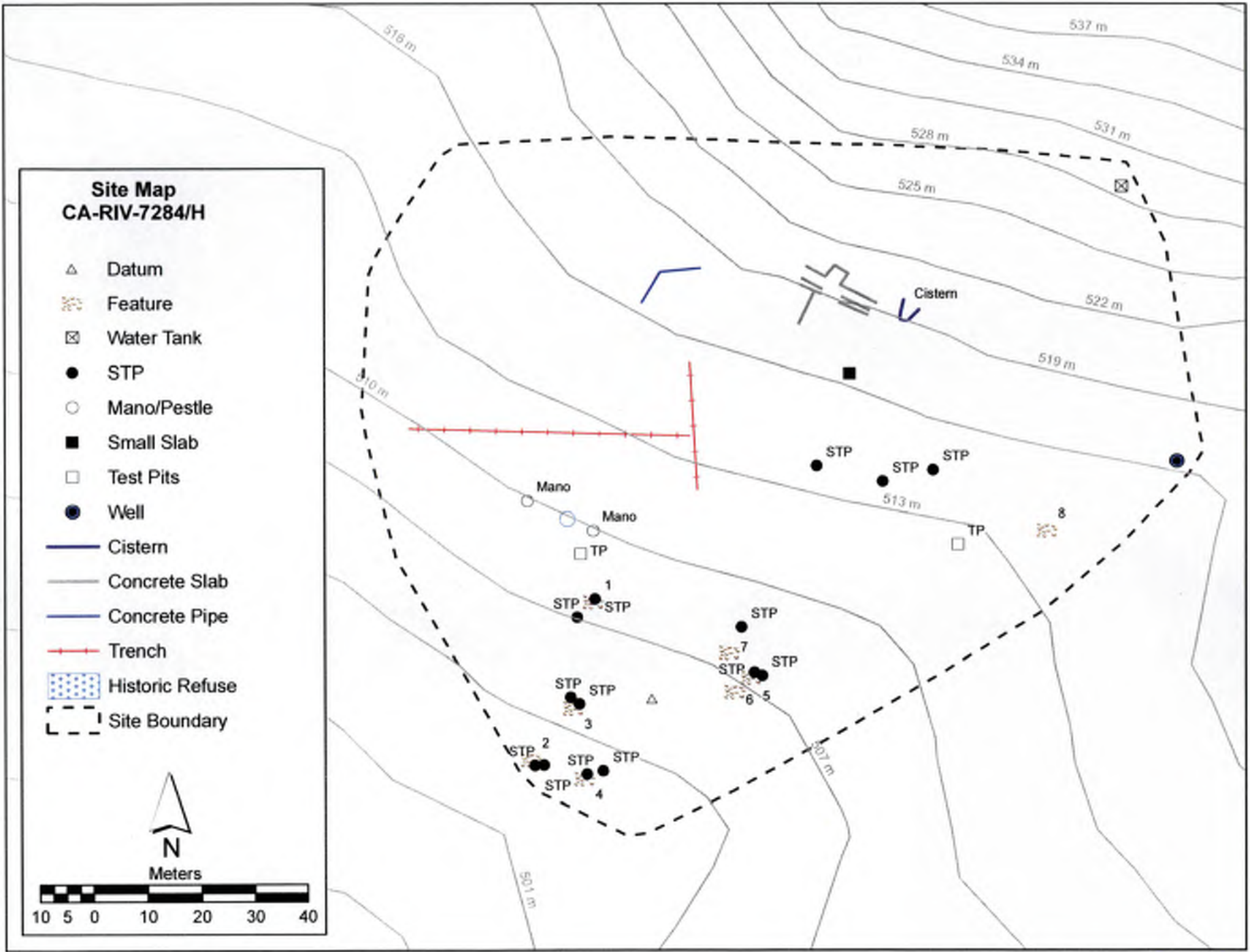
The methods for the test programs at CA-RIV-7284/H and CA-RIV-7285 included a surface collection, documentation of all milling features, excavation of shovel test pits (STPs), excavation of 1-by-1-meter test units (at CA-RIV-7284/H), mechanical trenching (also at CA-RIV-7284/H only), and cataloging and analysis of the recovered artifacts. The fieldwork at CA-RIV-7284/H and CA-RIV-7285 was performed between June 26 and 28, 2003, and was directed by Jay Sander, M.A., Chambers Group Senior Archaeologist and Field Director. Other project personnel are listed in Section 7.

2.2.1 CA-RIV-7284/H

Where possible, two STPs were excavated at judgmentally placed locations adjacent to each of the granite boulder milling stations. A total of 15 STPs were excavated in 25-centimeter (cm) levels to a maximum depth of 50 cm or until bedrock was encountered. Three STPs, not associated with any features, were placed 10 meters apart in a judgmentally selected area between the historic and prehistoric features. No STPs were placed in the vicinity of Feature 6 due to a paucity of soil and none were placed near Feature 8; instead, a 1-by-1-meter test unit was excavated near the southwest edge of that feature. Additionally, a second 1-by-1-meter test unit was placed in-between the two manos that were found on the ground surface. Finally, two backhoe trenches were placed in the vicinity of the historic-period component of the site (see Figure 3).

Excavated material was passed through 1/8th inch mesh. All material remaining in the screen was carefully sorted in the field for identification and potential cataloging.

All bedrock milling features were mapped, measured, and photographed. For each bedrock outcrop with milling features, a map was made of the surface of the outcrop showing the relationship and sizes of the milling features.



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

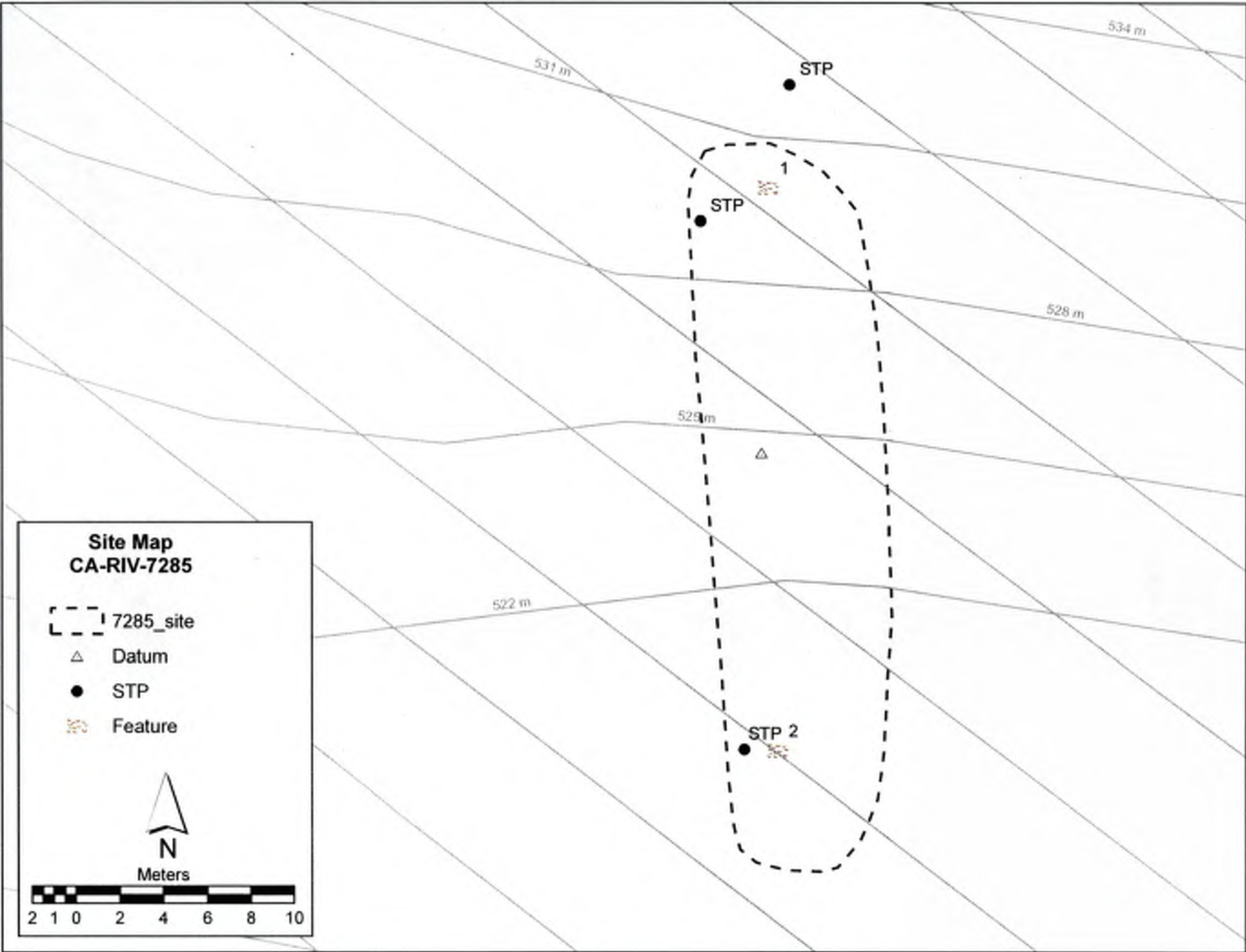
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2.2.2 CA-RIV-7285

Three STPs were excavated at CA-RIV-7285. These included one each adjacent to the two granite outcrops (Features 1 and 2) containing milling features, as well as one at the base of an outcrop near Feature 1 that could conceivably have been used as a small sun or wind shelter (see Figure 4).

Excavated material was passed through 1/8th inch mesh. All material remaining in the screen was carefully sorted in the field for identification and potential cataloging.

All bedrock milling features were mapped, measured, and photographed. For each bedrock outcrop with milling features, a map was made of the surface of the outcrop showing the relationship and sizes of the milling features.



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SECTION 3 - RESULTS

3.1 CA-RIV-7284/H

There are eight milling stations at this site. Feature 1 is on the west side and Features 2 through 8 form an arc from the southwest corner to the east edge of the site. The boulders range in size from 10 cm to 300 cm high and from 90 cm to 400 cm across. None of the eight features exhibited more than one slick. In general, most of the slicks appeared to only be moderately well formed.

Surface items collected from the surface of CA-RIV-7284/H included one unifacial granite mano fragment and one granite cobble with both a single ground surface and a moderately well-battered end. Neither artifact appeared to be shaped other than through casual use. No flaked stone was observed at the site.

The historic-period component of the site is comprised of structural features, an electric well pump, and a trash scatter that is dominated by 1940–1960s refuse. Also noted were a few fragments of sun-colored amethyst glass which dates to between the late 1800s and early 1900s. The structural features include dry-lain rock alignments, a concrete and rock wall built into the side of a hill, two small concrete slabs, and a concrete cistern surrounding a natural spring. One of the stones used as building material in the dry-lain rock wall is a prehistoric metate made from locally available schist. These remaining features all appear to be fairly insubstantial.

None of the 15 STPs yielded cultural material. The soil was found to be extremely disturbed sandy silt, often with modern trash well into the second 25 cm level. Of the 12 STPs associated with features, six went down 50 cm and the remaining encountered bedrock at between 9 and 32 cm below ground surface. All three STPs not associated with milling features were excavated to 50 cm below surface.

Unit 1 was located next to Feature 8. The unit was excavated through loose to moderately-well compacted sandy silt using a mattock and shovel to a depth of 40 cm below surface where decomposing granite was encountered. One abalone shell button was found in the 10 to 20 cm level. Aside from that, no prehistoric or historic-period artifacts were found. No discernible stratigraphy was apparent in the unit sidewalls.

Unit 2 was located between the two manos found on the surface, next the western end of the site. The unit was excavated through loose to moderately-well compacted sandy silt using a mattock and shovel to a depth of 30 cm below surface where granite bedrock was encountered. No cultural material was found and no discernible stratigraphy was apparent in the unit sidewalls.

The site was likely used as a temporary resource procurement and processing location. The ephemeral nature of the milling features and near-total absence of artifacts suggests that it is not likely that people stayed overnight and that this location was not used often.

3.2 CA-RIV-7285

There are a total of two outcrops that contain milling features at CA-RIV-7285, as well as one boulder large enough to serve as a wind or sun shelter. Feature 1, the larger outcrop of the two, measures 4.5 meters in diameter. There is one milling slick measuring 50 by 60 cm. The most interesting thing about this boulder is that it has split in two pieces with the crack running through the middle of the slick. The smaller of the two portions has since shifted 50 cm away from the larger. Feature 2 measures 3.2 meters in diameter and contains two slicks, one of which is nearly 1 meter across.

One STP was placed adjacent to each of the 2 bedrock milling features. A third STP was placed next to the boulder that appeared to have potential as a temporary shelter. All three STP were excavated down to 50 cm below surface. None yielded cultural remains of any type. Also, no artifacts were found on the surface of the site. A-RIV-7285 appears to be a limited-use bedrock mortar grinding station no evidence for overnight stays.

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SECTION 4 - SIGNIFICANCE

4.1 CA-RIV-7284/H

Almost all cultural material at CA-RIV-7284/H was found on the surface—none of it prehistoric. The cultural material on the surface of the site has already been analyzed and the bedrock milling features have been recorded. If there is any subsurface cultural material remaining at CA-RIV-7284/H, it likely has very limited research potential. The recovered cultural material is not sufficient to address the research topics discussed in Section 2.1. The site type and activities topic has been adequately addressed using the data already recovered from the surface (see Section 3.1). The unit and STP results indicate that subsurface data are not present with which to address the research topics of internal site organization, subsistence, chronology, and trade and exchange. The distribution of the two manos would not provide sufficient information to investigate internal site organization at CA-RIV-7284/H. No animal bone was found, suggesting that data from further subsurface investigation would be inadequate to address the subsistence research topic. It is likely that this site dates to the Late Period and was used by people ancestral to either the Cahuilla, Serrano, or Tongva people. No items that would have been traded or exchanged were recovered from CA-RIV-7284/H.

Because the site type and activities topic has been adequately addressed using data from the test program and the data potential is not adequate to address the other research topics, CA-RIV-7284/H is evaluated as not eligible for the California Register of Historical Resources.

The in-depth property research carried out for the parcel (see Appendix A) similarly demonstrates that the historic component of the site fails to meet any of the criteria for inclusion to the NRHP or CHRP. For this reason, again, CA-RIV-7284/H is evaluated as not eligible for the California Register of Historical Resources.

4.2 CA-RIV-7285

No cultural material was found subsurface at CA-RIV-7285. Because the site type and activities topic has been adequately addressed using data from the surface of the site and there is no additional subsurface data potential with which to address other research topics, CA-RIV-7285 is evaluated as not eligible for the California Register of Historical Resources.

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SECTION 5 - RECOMMENDATIONS

Because CA-RIV-7284/H and CA-RIV-7285 do not appear to be eligible for the California Register of Historical Resources, mitigation through preservation or data recovery is not necessary. Furthermore, the results of the test program showed that there is no significant subsurface cultural material associated with the sites. However, any trenching, grading, or other ground surface-disturbing activity within 30 meters (100 feet) of the site boundaries should be monitored by a qualified archaeologist who shall have the power to divert or halt grading if features or other potentially important cultural material are encountered. Such features or material should then be evaluated and recovered, if necessary.

RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
CA-RIV-7284/H AND CA-RIV-7285, MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

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RESULTS OF ARCHAEOLOGICAL TEST PROGRAM:
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HISTORIC RESOURCES ASSESSMENT REPORT

APN: 256-150-001-4
Moreno Valley, California 92555

Historic Resources Survey and Evaluation

Prepared by
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Sr. Architectural Historian
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July 2007

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

1. INTRODUCTION

A. INTRODUCTION

This assessment report documents and evaluates the federal, state, and local significance and eligibility of the historic agricultural features located at Gernert Road, Moreno Valley, Riverside County, California. The report includes a discussion of the survey methodology used, a brief historic context of the property and surrounding area, and the identification and formal evaluation of the subject property.

The subject features consists a site with both prehistoric and historic resources located approximately 1,280 feet east of Gernert Road and 480 feet north of Jennings Court. (See Figure 1.) The historic-period features of the site have been surveyed (CRM Tech, 2007) and are considered to be associated with a late 19th-century or early 20th-century homestead. The features include dry-laid rock walls, a cellar constructed of large rocks and mortar, two small, formed concrete foundations, a well, a cistern, metal pipes, and concrete culvert pipe.

The site is reached by going north on Morton Road from the intersection with Box Spring Road, until the road bears to the left (west). There is a dirt driveway heading north up towards the base of the hills at the point where Morton Road heads west. The driveway goes up (north) the hillside and then heads to the east for 200 feet. The drive ends at the site. (See Figure 2.)

B. BACKGROUND INFORMATION

The subject property was previously surveyed and identified as a historic resource by CRM Tech in April 2007 and identified by the Eastern Information Center as site CA-RIV-7284/H (33-15937). The historic resources were included in the survey for identification purposes only and were not evaluated for eligibility for listing in the National Register of Historic Places, California Register of Historical Resources, or for designation under a local ordinance.

In 2002, CRM Tech prepared an archaeological mitigation report for Tentative Tract 26901 (containing site CA-RIV-6943/H), Project No. PO 1-005, City of Moreno Valley, Riverside County. This report was prepared in anticipation of a housing development that was planned, and later constructed, immediately to the east of the property under investigation in the current project. The historic resources investigated in the 2002 report were found to be the remains of a late nineteenth-century homestead owned by Cecil R. G. Webbe.

C. METHODOLOGY

This historic resource assessment was conducted by Pamela Daly, M.S., Senior Architectural Historian. In order to identify and evaluate the subject property as a potential historic resource, a multi-step methodology was utilized. Site inspection

review of tax assessor records of the prior existing buildings were performed to document existing conditions and assist in assessing and evaluating the property for significance. An intensive-level pedestrian survey of the property, including photography and background research, was also conducted. The National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), and the City of Moreno Valley Landmark or Structure of Merit criteria were employed to evaluate the significance of the property. In addition, the following tasks were performed for the study:

- The National Register of Historic Places, the California Historical Resources Inventory, and the City of Moreno Valley Historic Resources Inventory were searched.
- Site-specific research was conducted on the subject property utilizing maps, city directories, newspaper articles, historical photographs, and other published sources.

Ordinances, statutes, regulations, bulletins, and technical materials relating to federal, state, and local historic preservation, designation assessment processes, and related programs were reviewed and analyzed.

2. REGULATORY FRAMEWORK

Historic resources fall within the jurisdiction of several levels of government. Federal laws provide the framework for the identification, and in certain instances, protection of historic resources. Additionally, states and local jurisdictions play active roles in the identification, documentation, and protection of such resources within their communities. The National Historic Preservation Act (NHPA), of 1966 as amended, and the California Register of Historical Resources (CRHR), are the primary federal, state, and local laws and regulations governing the evaluation and significance of historic resources of national, state, regional, and local importance. A description of these relevant laws and regulations are presented below.

A. FEDERAL LEVEL

1. National Register of Historic Places

First authorized by the Historic Sites Act of 1935, the National Register of Historic Places (National Register) was established by the National Historic Preservation Act of 1966, as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment."¹ The National Register recognizes properties that are significant at the national, state and local levels. Further discussion of National Register criteria and guidelines is provided in Section III, Environmental Setting, of this document.

B. STATE LEVEL

The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the National Historic Preservation Act (NHPA) on a statewide level. The OHP also carries out the duties as set forth in the Public Resources Code (PRC) and maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the state's jurisdictions.

1. California Register of Historical Resources

Created by Assembly Bill 2881, which was signed into law on September 27, 1992, the California Register of Historical Resources (California Register) is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change."² The criteria for eligibility for the California Register are based upon National Register criteria.³ Certain resources are determined by the statute

¹ *Code of Federal Regulations (CFR)*, 36 § 60.2.

² *California Public Resources Code* § 5024.1(a).

³ *California Public Resources Code* § 5024.1(b).

to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register of Historic Places.⁴

The California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register of Historic Places and those formally Determined Eligible for the National Register of Historic Places;
- California Registered Historical Landmarks from No. 770 onward;
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.⁵

Other resources which may be nominated to the California Register include:

- Individual historical resources;
- Historical resources contributing to historic districts;
- Historical resources identified as significant in historical resources surveys with significance ratings of Category 1 through 5;
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as a historic preservation overlay zone.⁶

C. LOCAL LEVEL

1. City of Moreno Valley

The City of Moreno Valley, through provisions in the Moreno Valley Municipal Code, has established processes to preserve its designated historic resources. The provisions of the Moreno Valley Municipal Code relative to historic preservation (Title 7 Cultural Preservation), present a planning tool to promote the public health, safety and general welfare of its constituents by providing for the preservation, identification, protection, enhancement and perpetuation of existing historic resources.

Section 7.01.010 of the Ordinance defines a historic resource as any site, building, structure, area or place, signs, objects, features, districts, neighborhoods, streets and natural features having special cultural, historical, archaeological,

⁴ California Public Resources Code § 5024.1(d).

⁵ California Public Resources Code § 5024.1(d).

⁶ California Public Resources Code § 5024.1(e).

architectural or community value in the city. Section 7.05.010 defines a Landmark or Structure of Merit as any site, including significant trees or other significant permanent landscaping located thereof, place, building, structure, street, improvement, natural feature or other object having a special historical, archaeological, paleontological, cultural, architectural or community value in the city.

Listing a Landmark or Structure of Merit in the City of Moreno Valley does not preclude a historic resource from being removed from the local Register, nor from being altered or demolished. The City of Moreno Valley Director of Development and the Cultural Preservation Advisory Committee and its staff review recommendations and permits to delete, alter, relocate or demolish these historic resources. Sections 7.05.020 through 7.05.100 of the City of Moreno Valley Municipal Code must be implemented if the rescission or modification of the landmark status of a historic resource and/or historic district is intended.

3. EVALUATION

A. HISTORIC CONTEXT

1. Moreno Valley ⁷

In 1850, California became a state and the large Spanish land grant of San Jacinto Nuevo y Potrero became public land, developed by ranchers and traveled over by John Butterfield's legendary but short-lived Overland Mail Company. His Tucson-to-San Francisco stage, via San Diego and Los Angeles, opened up the Temescal approach to Los Angeles, passing through the oak groves of what is now Perris Valley, continuing through what is now Moreno Valley, and over Reche Canyon into Redlands.

In 1883, Frank E. Brown formed the Bear Valley Land and Water Company. Brown ("Brown" is "Moreno" in Spanish) built a dam at Bear Valley in the San Bernardino Mountains and contracted to provide water to the tiny, and new communities of Moreno and Alessandro.

Histories of the Moreno Valley area state that when water was piped from Bear Dam in Big Bear Lake to the Moreno region in 1891 by the Bear Valley and Alessandro Development Co., land was sold for ten times the price of what it had been just months before and there was a veritable "land boom" as the population reached 500 residents. By 1893, Moreno had four brick buildings, a weekly newspaper, a \$5,000 school building, a hotel, livery stable, two churches, a pharmacy and a literary society.⁸ Groves of orange trees, olives, apricots, peaches and garden crops were established around farmsteads that had been built in the region. "It was a booming area in the late 1890's and early 1900's until the water was taken from the valley."⁹

As a result of the loss of water delivery, many of the over 500 residents of Moreno Valley were forced to leave the area in search of a more livable environment. The more expensive homes were removed from their foundations, and moved in their entirety by steam-powered tractors. Many of them were relocated to the city of Riverside. Others, stolen during the owner's absence, were relocated to parts unknown. By 1901, few people resided in the Moreno Valley, and those who remained turned primarily to the dry farming of hay, grain, and grapes. Mr. Brown had lost his dream, and the valley named after him remained as a reminder of the regions vulnerability to such simple needs as water.

2. Cecil R. G. Webbe

There are five facts known about Cecil R. G. Webbe, who owned the parcel of land that is currently being investigated.

⁷ Excerpted from *Moreno Valley, California, In the Beginning*. Hamner, V.F. Page 123-126.

⁸ *Riverside County, California, Place Names*, Gunther, Jane D. page33.

⁹ *The Mabel Stoddard Story*, compiled by Moreno Valley Jaycees, 1967.

- 1) A homestead with the name "Webbs" was identified on the GLO map dated 1853 – 1877. The homestead was located just to the east and south of the site presently being investigated.¹⁰ On February 20, 1884, Cecil R. G. Webbe was granted a 160 acre tract of land in Section 34, Township 2-South, Range 4-West, San Bernardino Meridian.¹¹ Webbe would have been granted the patent after a 3 to 5 year application process. (The patent application and yearly "proof" interviews can be valuable documents for learning more about the person/s applying for the patent. Due to the 60 to 90 day length of time to receive a copy of the file from the National Archives, the applicant file information will be amended to this report after they are received.)
- 2) Cecil R. G. Webbe is listed in the Schedule of the Twelfth Census of the United States, June 1, 1900, as living in Moreno Township, Riverside County, California. He is recorded as the "Head of Household", Single, born in July 1827, 72 years old. He was born in Ireland, and gained citizenship to the United States in 1873.¹²
- 3) Webbe deeded his property to Charles H. Vosburg, a carpenter, living on Walnut Street near Tenth, in the city of Riverside, California.¹³ The transfer was made between 1895 and 1899.¹⁴
- 4) On September 11, 1908, Cecil R. G. Webb, age 82, United State citizen, and rancher in Riverside, California, was traveling on the steamship City of Pueblo from Victoria, Canada to San Francisco, California. He had three pieces of baggage which may have meant that he had taken a journey of some length.¹⁵

Out of these five facts, we can only conjecture a history of Cecil R. G. Webbe.¹⁶ According to Canadian immigration records, there was a large group of individuals with the last name of Webbe, which emigrated from Great Britain to Canada in 1871. This may be where Cecil's siblings settled, while he ventured into the United States, arriving here in 1873.

It appears that shortly thereafter, he settled on the land in Moreno Valley, establishing a small homestead. The navel orange had just been cultivated in 1873, and it sparked a booming citrus industry in the Riverside area. The land that Webbe had settled on, and is on the parcel being investigated in this report, had a natural

¹⁰ *General Land Office map; 1855 to 1877.*

¹¹ *Bureau of Land Management, General Land Office Records.* <http://www.glorerecords.blm.gov>.

¹² *Twelfth Census of the United States, Riverside County, Moreno Township, Sheet 5.*

¹³ *Twelfth Census of the United States, Riverside County, Riverside Township, Sheet 6.*

¹⁴ *CRM TECH, Archaeological Mitigation Report Tentative Tract 26901. Page 36.*

¹⁵ *Pacific Coast Steamship Company, S.S. City of Pueblo, passenger manifest, September 11, 1908.*

¹⁶ *This possible history is based on a review of all the records available on Ancestry.com. Records include census and immigration information for the United States, Great Britain and Canada; ship manifests, and other records.*

spring which would have been able to provide the needed irrigation in an area not serviced by the Redlands Water Co. or Gage canals. Webbe stayed with the parcel until the late 1890s when he sold the land to Charles H. Vosburg.

Webbe may have stayed on the land even after selling it to Vosburg, which would explain why he is listed on the 1900 Census as living in Moreno Township, and then why in 1908 on the ships manifest, he still refers to himself as a "rancher" in Riverside County. The ships manifest is used to support the theory that Cecil Webbe still had family in Canada. (The ships manifest also shows that Cecil was a man of considerable stamina, for he made this voyage from Riverside to San Francisco to Canada, and back again, when he was 82 years old.)

Unfortunately, no further information was found about Cecil after 1908. What we do know is that although Cecil Webbe was an industrious and adventurous immigrant to America, and would have braved many hardships establishing a homestead in the area that would become Riverside County and Moreno Valley; he is not noted as a person who made an impact on the early history of the region.

B. CRITERIA FOR EVALUATION OF HISTORIC RESOURCES

In analyzing the historic significance of the subject property, criteria for designation under federal, State, and local landmark programs were considered. Additionally, the Office of Historic Preservation (OHP) survey methodology was used to survey and rate the relative significance of the property.

1. National Register of Historic Places

To be eligible for listing in the National Register, the quality of significance in American history, architecture, archaeology, engineering, or culture must be in a district, site, building, structure, or object that possesses integrity of location, design, setting, materials, workmanship, feeling and association, and:¹⁷

- A. is associated with events that have made a significant contribution to the broad patterns of our history; or
- B. is associated with the lives of persons significant in our past; or
- C. embodies the distinctive characteristics of a type, period, or method of construction or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. yields, or may be likely to yield, information important to prehistory or history.

¹⁷ *Guidelines for Completing National Register Forms, National Register Bulletin 16, U.S. Department of the Interior, National Park Service, September 30, 1986 ("National Register Bulletin 16"). This bulletin contains technical information on comprehensive planning, survey of cultural resources, and registration in the Register of Historic Places.*

A property eligible for listing in the National Register must meet one or more of the four criteria (A-D) defined above. In addition, unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing.

In addition to meeting the criteria of significance, a property must have integrity. "Integrity is the ability of a property to convey its significance."¹⁸ According to *National Register Bulletin 15*, within the concept of integrity, the National Register criteria recognize seven aspects or qualities that, in various combinations, define integrity. To retain historic integrity a property will always possess several, and usually most, of these seven aspects. The retention of specific aspects of integrity is paramount for a property to convey its significance.¹⁹ The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association. The following is excerpted from *National Register Bulletin 15*, which provides guidance on the interpretation and application of these factors.

- Location is the place where the historic property was constructed or the place where the historic event occurred.²⁰
- Design is the combination of elements that create the form, plan, space, structure, and style of the property.²¹
- Setting is the physical environment of a historic property.²²
- Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.²³
- Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.²⁴

¹⁸ *National Register Bulletin 15*, page 44.

¹⁹ *Ibid.*

²⁰ "The relationship between the property and its location is often important to understanding why the property was created or why something happened. The actual location of historic property, complemented by its setting is particularly important in recapturing the sense of historic events and persons. Except in rare cases, the relationship between a property and its historic associations is destroyed if the property is moved." *Ibid.*

²¹ "A property's design reflects historic functions and technologies as well as aesthetics. It includes such considerations as the structural system; massing; arrangement of spaces; pattern of fenestration; textures and colors of surface materials; type, amount, and style of ornamental detailing; and arrangement and type of plantings in a designed landscape." *Ibid.*

²² *National Register Bulletin 15*, page 45.

²³ "The choice and combination of materials reveals the preferences of those who created the property and indicated the availability of particular types of materials and technologies. Indigenous materials are often the focus of regional building traditions and thereby help define an area's sense of time and place." *Ibid.*

²⁴ "Workmanship can apply to the property as a whole or to its individual components. It can be expressed in vernacular methods of construction and plain finishes or in highly sophisticated configurations and ornamental detailing. It can be based on common traditions or innovative period techniques." *Ibid.*

- Feeling is property's expression of the aesthetic or historic sense of a particular period of time.²⁵
- Association is the direct link between an important historic event or person and a historic property.²⁶

In assessing a property's integrity, the National Register criteria recognize that properties change over time; therefore, it is not necessary for a property to retain all its historic physical features or characteristics. The property must, however, retain the essential physical features that enable it to convey its historic identity.²⁷

For properties that are considered significant under National Register criteria A and B, *National Register Bulletin 15* states that a property that is significant for its historic association is eligible if it retains the essential physical features that made up its character or appearance during the period of its association with the important event, historical pattern, or person(s).²⁸

In assessing the integrity of properties that are considered significant under National Register criterion C, *National Register Bulletin 15* provides that a property important for illustrating a particular architectural style or construction technique must retain most of the physical features that constitute that style or technique.²⁹

The primary effects of listing in the National Register on private property owners of historic buildings is the availability of financial and tax incentives.³⁰ In addition, for projects that receive federal funding, the Section 106 clearance process must be completed. State and local laws and regulations may apply to properties listed in the National Register. For example, demolition or inappropriate alteration of National Register eligible or listed properties may be subject to the California Environmental Quality Act (CEQA).

²⁵ "It results from the presence of physical features that, taken together, convey the property's historic character." *Ibid.*

²⁶ "A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to the observer. Like feeling, associations require the presence of physical features that convey a property's historic character...Because feeling and association depend on individual perceptions, their retention alone is never sufficient to support eligibility of a property for the National Register." *Ibid.*

²⁷ *National Register Bulletin 15*, page 46.

²⁸ *Ibid.*

²⁹ "A property that has lost some historic materials or details can be eligible if it retains the majority of the features that illustrate its style in terms of the massing, spatial relationships, proportion, patter of windows and doors, texture of materials, and ornamentation. The property is not eligible, however, if it retains some basic features conveying massing but has lost the majority of features that once characterized its style." *Ibid.*

³⁰ See 36 CFR 60.2(b) (c).

2. California Register of Historical Resources

To be eligible for the California Register, a historic resource must be significant at the local, state, or national level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

Additionally, a historic resource eligible for listing in the California Register must meet one or more of the criteria of significance described above and retain enough of its historic character or appearance to be recognizable as a historic resource and to convey the reasons for its significance. Historical resources that have been rehabilitated or restored may be evaluated for listing.³¹

Integrity under the California Register is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. The resource must also be judged with reference to the particular criteria under which it is proposed for eligibility. It is possible that a historic resource may not retain sufficient integrity to meet criteria for listing in the National Register, but it may still be eligible for listing in the California Register.³²

3. California Office of Historical Preservation Survey Methodology

The evaluation instructions and classification system prescribed by the California Office of Historic Preservation in its Instructions for Recording Historical Resources provide a three-digit evaluation rating code for use in classifying potential historic resources. The first digit indicates one of the following general evaluation categories for use in conducting cultural resources surveys:

1. Listed on the National Register or the California Register;
2. Determined eligible for listing in the National Register or the California Register;

³¹ *California Code of Regulations, California Register of Historical Resources (Title 14, Chapter 11.5), Section 4852(c).*

³² *Ibid.*

3. Appears eligible for the National Register or the California Register through survey evaluation;
4. Appears eligible for the National Register or the California Register through other evaluation;
5. Recognized as Historically Significant by Local Government;
6. Not eligible for any Listing or Designation; and
7. Not evaluated for the National Register or California Register or needs re-evaluation.

The second digit of the evaluation status code is a letter code indicating whether the resource is separately eligible (S), eligible as part of a district (D), or both (B). The third digit is a number that is used to further specify significance and refine the relationship of the property to the National Register and/or California Register. Under this evaluation system, categories 1 through 4 pertain to various levels of National Register eligibility. The California Register, however, may include surveyed resources with evaluation rating codes through level 5. In addition, properties found ineligible for listing in the National Register, California Register, or for designation under a local ordinance are given an evaluation status code of 6.

C. HISTORIC RESOURCES IDENTIFIED

The historic resources being surveyed in this report are rock alignments, foundations, a cellar, a well, and a cistern (Photograph 1). The features that are associated with water; the cistern, well and cellar, appear to date from the early homestead of Cecil Webbe established circa 1875. The rock walls may also derive from that period also. The foundations constructed of modern cement and concrete are most probably associated with the small house and barn that was constructed near the source of the water in 1940.

The features associated with the homestead of circa 1875 are made of large rough hewn stones. The cellar, well and cistern walls are constructed of stones and a mortar comprised of sand/dirt, water, lime and a small amount of hydraulic cement. The stone walls were dry laid and appear to serve to hold back soil (Photograph 2).



Photograph 1: Cistern



Photograph 2: Dry laid wall

According to the Riverside County Tax Assessors records for the project site (APN 256-150-001-4) a small house measuring 40 feet by 18 feet, that combined with the attached porches was 788 square feet, and built in 1940. It was a simple structure of frame construction, with a gable roof, sitting on a poured concrete foundation. The house had two bedrooms, a living room, kitchen and bathroom. The interior f

were noted as being "few" and "cheap". The windows were casement and double-hung, with wood frames. The house was hooked up to the local electric power supply which powered a water heater, but no heating system is noted.

There was also a gable roofed barn measuring 22 feet by 32 feet that dated from 1940, and a small storage shed measuring 12 feet by 18 feet, located on the parcel. All of the buildings were demolished in 1989.

The modern concrete and cement blocks (Photograph 3) found in the project area would date from the 1940 to 1989 time period. There are also some long lengths of galvanized pipe that seem to be coming from the natural water source that could have been used to supply the house or barn with water.



Photograph 3: A block of modern concrete

3. Significance

The subject property, located on Gernert Road is located in the City of Moreno Valley. There is a collection of some historic features that are the remains of an early water system associated with the homestead and ranch of Cecil R. G. Webbe. The area surrounding the subject features, and the parcel it sits on, is quickly being converted to planned residential neighborhoods. At this point in time, there is still a rural feel to the area with many properties containing corrals, barns and sheds for horses or other livestock.

In assessing the subject property's historical significance federal, state, and local criteria was applied. The subject property is currently not listed on either the National

Register or the California Register, nor is it a designated City of Moreno Valley Historic Landmark or Structure of Merit.

Under the National Register or California Register criteria used to assess the historic features association with significant historical events exemplifying broad patterns of our history, the historic features were found not to be associated with any significant events in Moreno Valley, California or the United States.

Under the National Register or California Register criteria relating to a buildings association with persons of historic importance, the property investigated in this report has not been found to have been associated with any persons important in the local or national arena. The history of Cecil R. G. Webbe is interesting, but there has not been any information revealed that Cecil Webbe was of historic importance in national or local history.

Under the National Register or California Register criteria relating to the distinctive characteristics of a type, period, region, or method of construction, the subject features are not significant as they are the remnants of the water/irrigation system that was created by Cecil Webbe. The remaining features are unable to "make a picture" of the system Webbe created to take advantage of the artesian waters, and how he irrigated his crops or fruit trees. The features are interesting as they date from the last quarter of the nineteenth century, but they do not possess the integrity to relate the time, period or method used to construct them.

When Webbe constructed the cistern and well, he used a method of construction that was widely used throughout the United States and was not limited to the Moreno Valley area, or the State of California. The features, that are remnants of water system that Cecil R. G. Webbe constructed, have been severely compromised by the demolition of the remains of the historic homestead that was located to the south and east of the project area, and the demolition of the house and barn located on the subject area in 1989. The integrity has been lost that associate these features with a homestead that was one of the earliest in what is now Moreno Valley.

RESULTS

The historic features located on the site are not eligible for listing on the National Register of Historic Places, the California Register of Historical Resources or on the list of historic sites of Moreno Valley.

The archeological investigation performed as part of this investigation, and this report with what is known of Cecil R.G. Webbe, should serve to record the historic features for future research by historians interested in Moreno Valley history.

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APPENDICES

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



PACIFIC COAST STEAMSHIP CO.
District and Port of San Francisco

Form No. 100-10
(2) PASSENGER LIST
The Harbor Act 1907

I, J. J. Shea, Master of the Steamship City of Puebla, do solemnly swear that the following List or Manifest, subscribed by me, and now delivered by me to the Collector of Customs of the District of San Francisco is a full and perfect list of all the passengers taken on board the said Steamship at Victoria, B.C. from which port said Steamship has now arrived; and that on said list is truly designated the age, the sex, and the calling of each of the said passengers, the location of the compartment or space occupied by each during the passage, the country of citizenship of each, and also the destination or location intended by each; and that said List or Manifest truly sets forth the number of said passengers who have died on said voyage, and the dates and causes of death, and the names and ages of those who died; also the pieces of baggage of each; also a true statement, so far as can be ascertained, with reference to the intention of each alien passenger as to a protracted sojourn in this country. So help me, God.

Signed at this 11th day of Sept. 1907 before me, J. J. Shea is Master, from Victoria, B.C. per No. 1712 1907

181 NAME	AGE		SEX	CALLING	Country of which they are Severally Citizens	BAGGAGE Number of Pieces	Native Country of Emigrants	Intended Destination or Location	Location of Compartment or Space	Died on Voyage and Cause of Death
	Years	Months								
First Class										
1 Beauclerk, Mary	21		✓	maid	Canada	1	W.S.	San Diego	12 th Cabin	1/1/1907
2 Chapman, Albert	48		✓	Merchant	W.S.	1	W.S.	San Diego		
3 Corrallo, Hovace	73		✓	Rancher	Canada	1	England	Do		5 years
4 Coddington, Arthur	43		✓	Builder	Do	5	Do	San Diego		1/1/1907
5 Coddington, Anna	33		✓	Housewife	Do	1	Do	Do		1/1/1907
6 Coddington, Selia	11		✓	none	Do	1	W.S.	Do		
7 Coddington, Dudley	10		✓	Do	Do	1	W.S.	Do		
8 Coddington, Jessie	5		✓	Do	Do	1	W.S.	Do		
9 Coddington, Albert	1		✓	Do	Do	1	W.S.	Do		
10 Cornell, James T	23		✓	Merchant	W.S.	1	W.S.	San Diego		
11 Gardner, Sadie	29		✓	Housewife	W.S.	1	W.S.	San Diego		
12 Hester, John W.	33		✓	Teacher	Canada	1	Canada	San Diego		1/1/1907
13 Kilpatrick, Alex. S.	66		✓	Mill	W.S.	2	W.S.	San Diego		1/1/1907
14 Kilpatrick, Vera	48		✓	Housewife	W.S.	1	W.S.	Do		
15 Kilpatrick, Queenie	11		✓	none	W.S.	1	W.S.	Do		
16 Lind, Joshua	41		✓	Butcher	Canada	1	England	San Diego		1/1/1907
17 Lewis, Mrs. Dora	30		✓	Housewife	W.S.	1	W.S.	Do		
18 LeFont, Mrs. Belle	51		✓	Housewife	W.S.	1	W.S.	San Diego		
19 Larson, Bertha	21		✓	none	Canada	1	Canada	Do		1/1/1907
20 O'Brien, Margaret	34		✓	Widow	W.S.	1	W.S.	San Diego		
21 Parnell, Mrs. Elphinstone	67		✓	Housewife	Canada	1	Canada	San Diego		by years
22 Paquet, Madame	25		✓	Do	W.S.	1	W.S.	San Diego		
23 Tracy, Edward B.	35		✓	Rancher	W.S.	1	W.S.	Do		
24 Wills, Harry	23		✓	Merchant	England	1	England	Do		Paid
25 Wooten, James D.	37		✓	Merchant	Canada	10	Do	San Diego		by years
26 Wooten, E. W.	36		✓	Housewife	Do	1	Do	Do		
27 Wooten, Effie	10		✓	none	Do	1	Do	Do		
28 Wooten, Philip	7		✓	none	Do	1	Do	Do		
29 Wooten, Cora	4		✓	none	Do	1	Do	Do		
30 Wooten, Carl R. G.	22		✓	Rancher	W.S.	3	Ireland	San Diego		2 1/2 years
31 Fisher, Clark	61		✓	Retired	Canada	4	W.S.	San Diego		1/1/1907
32 Fisher, Louise	58		✓	Housewife	Do	1	England	Do		
33 Fisher, Georgia	19		✓	none	Do	1	Canada	Do		

White Number	
Emigrants	
Ballot as first class	
Transit	
Passes	
Alms returned	
Minorities	
Sex, Age, or Color	

Sept 11

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Approved April 15 1867

merced

reeting:

Land Office of the
California
the Act of Congress
Public Domain,

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Gen. M. Brady

appearance there,
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the premises hereby

RESIDENT OF THE
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area and eight

Secretary
General Land Office



The United States of America

To all to whom these Presents shall come, Greeting

Homestead Certificate No. 395
Application 676

Whereas, There has been deposited in the General Land Office of the United States a Certificate of the Register of the Land Office at Los Angeles, California, whereby it appears that, pursuant to the Act of Congress approved 20th May, 1862, "To secure Homesteads to actual Settlers on the Public Domain" and the acts supplemental thereto, the claim of Cecil R. G. Noble

has been established and duly commuted, in conformity to law, for the west half of the north west quarter, the east half of the north west quarter and the north east quarter of the north west quarter, section thirty four, in town thirty two south, of range four west, of San Bernardino Meridian, in California, containing one hundred and sixty acres

according to the Official Plat of the Survey of said Land, returned to the General Land Office by the Surveyor General.

Now know ye that there is, therefore, granted by the United States unto the said Cecil R. G. Noble

the tract of Land above described, To have and to hold the said tract of Land, with the appurtenances thereto, unto the said Cecil R. G. Noble and to his heirs and assigns forever; subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes, and rights to ditches and reservoirs used in connection with such water rights as may be recognized and acknowledged by the local customs, laws, and decisions of courts, and also subject to the right of the proprietor of a mine or lode to extract and remove his ore therefrom, should the same be found to penetrate or intersect the premises hereby granted, as provided by law.

In testimony whereof, I, Chester A. Arthur, PRESIDENT OF THE UNITED STATES OF AMERICA, have caused these letters to be made Patent, and the Seal of the General Land Office to be hereunto affixed.

Given under my hand, at the City of Washington, the twentieth day of February, in the year of our Lord one thousand eight hundred and eighty four, and of the Independence of the United States the one hundred and eighth.

In the Presence of
Chester A. Arthur
Mr. H. Crook
S. M. Clark

LS

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GERNERT

MORENO VALLEY
 80-00 256-150-001-4
 30 261-190-001-5
 PARCEL 12-39-001-15
 CODE
 SHEET 2 OF 3 SHEETS

RESIDENTIAL BUILDING RECORD

ADDRESS OF PROPERTY Gernert Rd LEGAL DESC. PAR LOT-NO. 34 BLOCK 25 RANGE 4N

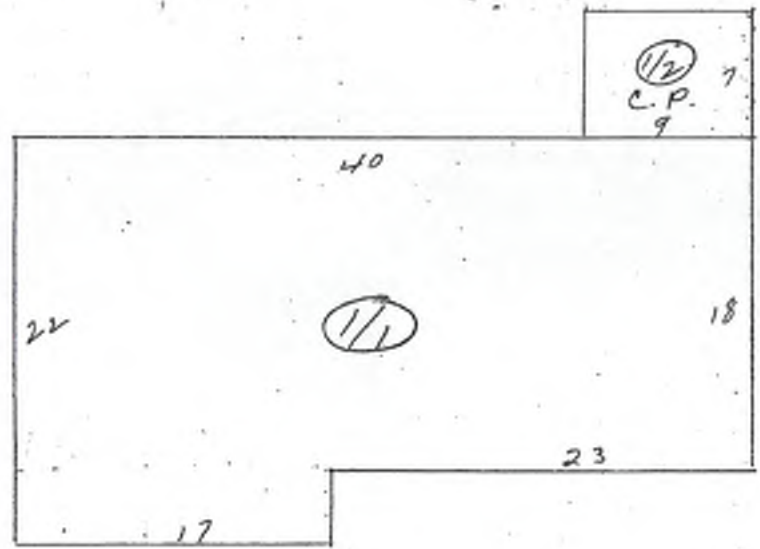
DESCRIPTION OF BUILDING

CLASS & SHAPE		CONSTRUCTION		STRUCTURAL		EXTERIOR		ROOF		LIGHTING		AIR CONDITION		ROOM and FINISH DETAIL													
ARCHITECTURE		TYPE		USE		DESIGN		FOUNDATION		WINDOWS		SPECIAL FEATURES		ROOMS		FLOORS		FLR. FIN.		INTERIOR FINISH							
109.5B		1-D-45A		Single		Concrete Med		Floor Joist		1st "X" "		Gd. Av. Fr.		SPEC. BLT. INS.		BATH		FINISH		Walls		Gr.		Ceilings		Gr.	
Light	Sub-Standard	Frame	Box	Stucco	Flat /4	Pitch	WIRING	Heat	Cool.	ROOMS	FLOORS	FLR. FIN.	INTERIOR FINISH														
Standard	Above Stand.	Concrete Blk.	B.&B.	T.&G.	Shed /4	FIXTURES	Radiant	Humid	All	B	1	2	Mat'l.	Gr.	Trim	Walls	Gr.	Ceilings	Gr.	PL	Gr.	PL	W	BD	A		
Special	Special	Brick	Adobe	Shingle	Roft. 2'x4'	Avg.	Med.	Flr. Htr.	Living	1			Pine														
Brick	Stone	Stone	Shingle	Brick Veneer	Boxed Eaves	Mary	Spec.	Central	Dining																		
Concrete	Stone	Concrete	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed	2																	
Brick	Stone	Brick	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed																		
Brick	Stone	Brick	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed																		
Brick	Stone	Brick	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed																		
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Brick	Stone	Brick	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed																		
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Brick	Stone	Brick	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed																		
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Brick	Stone	Brick	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed																		
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Brick	Stone	Brick	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed																		
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Brick	Stone	Brick	Shingle	Stone Veneer	Gutters	Rec.	220	M-B.T.U.	Bed																		
Brick	Stone	Brick																									

COMPUTATIONS

$$\begin{array}{r}
 40 \times 18 = 720 \\
 17 \times 4 = \underline{68} \\
 788 \\
 \cancel{6 \times 9 \times 9} = \underline{48} \\
 820
 \end{array}$$

$$9 \times 7 = 63 @ 0.50$$



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

01 of 02

RIVERSIDE COUNTY ASSESSOR
CAP RESIDENTIAL BUILDING RECORD

256-150-001-4

Site: 11120 MORTON Rd

Legal Description: Parcel 34 Tract T 25-R 4 W

Parcel No. 261-190-001-6

RESIDENTIAL BUILDING DESCRIPTION

Foundation	Structural	Exterior	Roof	Roof Cover	Windows
<input type="checkbox"/> Concrete	<input type="checkbox"/> Frame	<input type="checkbox"/> Stucco	<input type="checkbox"/> Peaked	<input type="checkbox"/> Comp. Shgls.	<input type="checkbox"/> Metal
<input type="checkbox"/> C.B.	<input type="checkbox"/> Box	<input type="checkbox"/> B&B	<input type="checkbox"/> Flat	<input type="checkbox"/> Rock	<input type="checkbox"/> Wood
<input type="checkbox"/> Piers	<input type="checkbox"/> C.B.	<input type="checkbox"/> Veneer	<input type="checkbox"/> Shed	<input type="checkbox"/> Shake	<input type="checkbox"/> Sliding
<input type="checkbox"/> Wood	<input type="checkbox"/> Brick	<input type="checkbox"/> Siding	<input type="checkbox"/> Mansard	<input type="checkbox"/> Tile	<input type="checkbox"/> Fixed
<input type="checkbox"/> Brick	<input type="checkbox"/> Stone	<input type="checkbox"/> Shgle.	<input type="checkbox"/> Boxed Eaves	<input type="checkbox"/> Shgle.	<input type="checkbox"/> Csst.
<input type="checkbox"/> Mudfill	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> Comp. Roll	<input type="checkbox"/> D.R.
<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> Gravel	<input type="checkbox"/> _____

RESIDENTIAL EXTRAS

Year	78
R&O	
Garb. Disp.	
Dishwasher	
Tr. Compactor	
Inter-com	
Total	0
Floor Htr.	
Wall Htr.	
Fer. Air Furn.	
Air Conditioning	
Ht. Pump	
Total	0
Fireplace	
Fireplace	

CONSTRUCTION RECORD

No.	For	Date	Amnt.
2682	Demo	4/21/79	

INTERIOR DETAIL

	All	Ent. H.	Liv. Rm	Dis. R.	Fan.	Bed	Bed			Kitch.
Fir. Cover										
Walls										
Ceiling										

BATH(S)

No.	Fir. Cover	Walls	Ceiling	WC	LA	YUB	St. Show.	O.T. Show.	Gl. Dr.	Finish

KITCHEN Drain Bd. & Cab. Top: Type: _____ LF Up. Cab. _____ LF Low Cab. _____ LF

POOL DESCRIPTION

Year Built _____

Dimensions _____ L F

Pool Extras

Amount
<input type="checkbox"/> Slide
<input type="checkbox"/> Heater
<input type="checkbox"/> _____
<input type="checkbox"/> _____
Total

GARAGE-CARPORT DESCRIPTION

Structure	Dimensions	Foundation	Exterior	Roof Cover	Interior	Floor	Yr. Blt.

REMARKS

MISCELLANEOUS STRUCTURES

Item No	Structure	Foundation	Exterior	Roof	Interior	Floor	Yr. Blt.	Dimensions	Area	Unit Cost	RCN	%GD	RCLD	Area	Unit Cost	RCN	%GD	RCLD
1	Box	Concr	Fv Siding	Comp Shg	Fin AE	Conc	740	22X32	704	11.01	7751	60	4651					
2	Storage Shed		Ply Wd.			Slab		12X18	216	NC								
TOTAL											7751	60	4651	TOTAL				

YARD IMPROVEMENTS

Item No	Structure	Foundation	Exterior	Roof	Interior	Floor	Yr. Blt.	Dimensions	Area	Unit Cost	RCN	Area	Unit Cost	RCN	Area	Unit Cost	RCN

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

MISCELLANEOUS BUILDING RECORD

ADDRESS

GERNERT ROAD

PARCEL

261-150-001-4
~~261-190-001-6~~

SHEET

3 OF 3

SHEET

DESCRIPTION OF BUILDINGS

Bldg. No.	Structure	Size	Found.	Wall & Exterior	Roof		Floor & Interior Detail	Second Story or Loft	Year Built	Est. To Life
					Type	Cover				
1	BARN	22x32	CONC	FRAME-SIDING	GAB	Comp SH.	CONC-FIN-78 CONC-GRD (BARN BEING CONV. TO HUNTING AREA) 75 PC -144.0A (AE CLASS-NO ENTRY) R34	-	(48) 1990	50

COMPUTATION

Appraiser-Date

RE 4/75
4678

Bldg. No.	Area	Unit Cost	Cost	% Good	R. C. N. L. N. D.	Unit Cost	Cost	% Good	R. C. N. L. N. D.	Unit Cost	Cost	% Good	R. C. N. L. N. D.	Unit Cost	Cost	% Good	R. C. N. L. N. D.
1	704 (75CF)	PC	2500	100 60	2500 2851												
Total					2500												

Appraiser-Date

4681

Bldg. No.	Area	Unit Cost	Cost	% Good	R. C. N. L. N. D.	Unit Cost	Cost	% Good	R. C. N. L. N. D.	Unit Cost	Cost	% Good	R. C. N. L. N. D.	Unit Cost	Cost	% Good	R. C. N. L. N. D.
Total																	

TWELFTH CENSUS OF THE UNITED STATES.

B

State California
County Riverside

SCHEDULE No. 1.—POPULATION.

Supervisor's District No. 6
Enumeration District No. 207

Tract or other division of county Riverside Township
Name of Institution X
Name of incorporated city, town, or village, within the above-named division Riverside City
Ward of city, Precinct &
Enumerated by me on the 11th day of June, 1900, Frank H. Hall, Enumerator.

Table with columns: LOCATION, SEX, RELATION, PERSONAL DESCRIPTION, RACE, CITIZENSHIP, OCCUPATION, TRADE, OR PROFESSION, EDUCATION, and OTHER. Rows list individuals with their names, birth dates, and origins.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



Chambers Group®

Solving Environmental Challenges

302 Brookside Avenue
Redlands, California 92373
909 • 335-7068 tel
909 • 335-6318 fax

PA05-007
File copy

F.1.c

RECEIVED
SEP 06 2007
CITY OF MORENO VALLEY

September 3, 2007

Kathleen Dale
Associate Planner
City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92552

Re: KINCAID DEVELOPMENT PROJECT: RESULTS OF AN ARCHAEOLOGICAL TEST PROGRAM AT CA-RIV-7284/H AND CA-RIV-7285 MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

Dear Ms. Dale:

In response to your request for an addendum to the report noted above, we are submitting this letter report with information gained from reviewing a copy of Cecil R. G. Webbe's General Land Entry file from the U.S. National Archives & Records, and research gained from a review of deeds and property records in San Bernardino County. We have also attached to this letter copies of the original patent and deed documents.

The General Land Entry (patent) file has copies of the documents and testimony that Webbe was required to file to obtain ownership of 160 acres of land in 1884, in what is now Moreno Valley, Riverside County. Webbe was still a citizen of Great Britain in 1880 when he applied for ownership of the parcel, he had resided on since 1875, under the Homestead Land Act (as revised in 1877). His house was recorded on the General Land Office (GLO) map when the area was surveyed in 1877. In Webbe's patent application he had to swear that he would establish a homestead on the parcel and that he would become a citizen of the United States. As he had already constructed a homestead on the land in 1875, he was able to fulfill his requirements for ownership in only two years. Webbe's final testimony in 1882 to the Los Angeles General Land Office states that he was 55 years old, was living with a maiden (unmarried) sister, was using the land for agricultural purposes, had settled on the land in March 1875, was still residing on the parcel, had made improvements consisting of a dwelling built in 1875, horse stables, other out buildings, a few vines and fruit trees, an apiary, water ditches, and that the cost of the improvements was approximately \$300. He also stated that he had broken and cultivated about 10 acres of land for the planting of barley, corn and vegetables.

Webbe was awarded ownership of the land, (which prior to 1893, was considered part of San Bernardino County) in 1882, and the patent was recorded in 1884. No sooner did Webbe get ownership of the land, he decided to sell the eastern half of it, 80 acres, to Milton Santee of Los Angeles County in May 1883. He sold to Santee the southeast ¼ of the northwest quarter, and the northeast ¼ of the southwest quarter, of Section 34. There are no buildings or structures noted as belonging to the parcel. According to the 1880 census records, Milton Santee had been a 45 year old surveyor working in the forests of Lassen County, and was residing in

IRVINE • REDLANDS • SAN DIEGO • BAKERSFIELD • RENO

www.chambersgroupinc.com

Certified Disabled Veteran Business Enterprise (DVBE)

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Jamesville Township. In 1900, he was recorded in that year's census as living in the 9th Precinct in Los Angeles. It does not appear that he ever established residency on the land, but he may have leased the land to local growers or homesteaders.

In 1891, Webbe sold the southwest ¼ of the northwest ¼, and the southwest ¼ of the northwest ¼ of the northwest ¼ of Section 34, to Charles M. Dexter. Included in the transfer deed (bill of sale) is a map of the parcel with the location of the natural springs and house of Cecil R.G. Webbe at its northeast corner. There is no notation on the deed map as to the location of the stables and outbuildings that Webbe had built when he claimed his patent. Charles M. Dexter, born in Ohio, had served in the 167th Regiment of the Ohio Infantry of the Union Army and had been discharged as a second lieutenant. In 1870 he was living with his mother, a brother and a sister in Delaware, Ohio, and working as a sewing machine superintendent. Charles and his mother were heading west, and in 1880 they were living in Colorado Springs, Colorado, where Charles was working as a machinist. He married shortly thereafter, and twenty years later in 1900, Charles and his wife were living on Eleventh Street in the city of Riverside. In 1910, at the age of 67, Charles and his wife are still living on Eleventh Street, and he is employed as a park superintendent in the city of Riverside. By 1920, only Charles' widow Rose is still living in Riverside on Eleventh Street.

After selling off the 80 acres to Milton Santee and 46 acres to Charles Dexter, Webbe would have only still owned 34 acres that were located in the most northern area of his original 160 acre parcel, along the southwest edge of the Box Spring Mountains. The landscape of this area is steep and rocky, not suited to agricultural purposes, nor does it have any natural aquifers.

For the time period of 1854 to 1916, we were unable to find any further transfers of land in San Bernardino County from Cecil R.G. Webbe, particularly from Webbe to Charles H. Vosburg in 1899. We did not review the records in Riverside County that would have started being kept in 1893. (The county of Riverside was created in 1893 from land previously associated with San Bernardino and San Diego counties.)

We have determined that although the project area is interesting in history of the settlement of Moreno Valley, it is not significant for its association with persons important in the history of the United States, California or Moreno Valley. This decision does not alter our conclusion as to the eligibility or significance of the project area and the historic features found there, as found in our report "Kincaid Development Report."

Very truly yours,




Pamela Daly, M.S.
Sr. Architectural Historian

Attach: Land Patent record of Cecil R.G. Webbe
Census pages for Charles M. Dexter and Milton Santee

I Cecil R. G. Webbe, for and in consideration of the sum of Five hundred Dollars to me in hand paid by Milton Santee of Los Angeles County California - do hereby grant bargain and sell unto the said Milton Santee all that Real property situated in the County of San Bernardino and State of California bounded and described as follows: all of the South East quarter (S.E. 1/4) of the North West quarter (N.W. 1/4) and the North East quarter (N.E. 1/4) of the South West quarter (S.W. 1/4) of Section Thirty four (34) in Township 2, South Range four (4) West San Bernardino Meridian containing Eighty (80) acres more or less.

Witness my hand and Seal this 21st day of May 1883.

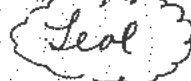
Cecil R. G. Webbe 

Signed sealed & delivered }
in presence of }
E. A. Aisbet }

State of California }
County of San Bernardino }⁰⁰

Now this 21st day of May 1883 before me W. F. Holcomb, County Clerk, Ex Officio Clerk of the Superior Court in and for the said County of San Bernardino County Cecil R. G. Webbe whose name is subscribed to the annexed instrument as party thereto, personally known to me to be the same person described in and who executed the said annexed instrument as a party thereto who duly acknowledged to me that he executed the same

In Witness whereof I have hereunto set my hand and affixed my official seal the day and year in this Certificate first above written



W. F. Holcomb, Co. Clerk
Per E. A. Aisbet Deputy

A full true and correct copy of original recorded at request of Milton Santee May 21st 1883 at 1:55 A.M.

W. F. Holcomb, Co. Recorder
Per E. A. Aisbet Deputy

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

U.S. CENSUS OF THE UNITED STATES

SCHEDULE No. 1.-POPULATION

California
Los Angeles

Supervisor's District No. 256
Enumeration District No. 48

City of Los Angeles
Precinct 95

Name of Establishment
Los Angeles City

Ward of City 5th

by me on the 2nd day of June, 1900.

Wesley Lafayette

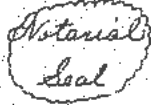
Enumerator

3494

HOUSEHOLD	NAME	RELATION	PERSONAL DESCRIPTION	MARRIAGE			EDUCATION	COURTSHIP, MARRIAGE, OR DIVORCE		INDUSTRY	SCHOOLING		NUMBER OF BORN
				Year of Marriage	Place of Marriage	Place of Birth		Married	Divorced		Years of Schooling	Months of Schooling	
107	John Miller	Head	W	1875	Ill	Ill	Ill						
108	Mary Miller	Wife	W	1875	Ill	Ill							
109	John Miller	Head	W	1875	Ill	Ill							
110	Mary Miller	Wife	W	1875	Ill	Ill							
111	John Miller	Head	W	1875	Ill	Ill							
112	Mary Miller	Wife	W	1875	Ill	Ill							
113	John Miller	Head	W	1875	Ill	Ill							
114	Mary Miller	Wife	W	1875	Ill	Ill							
115	John Miller	Head	W	1875	Ill	Ill							
116	Mary Miller	Wife	W	1875	Ill	Ill							
117	John Miller	Head	W	1875	Ill	Ill							
118	Mary Miller	Wife	W	1875	Ill	Ill							
119	John Miller	Head	W	1875	Ill	Ill							
120	Mary Miller	Wife	W	1875	Ill	Ill							

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

certificate first above written.



Jno. L. Merriam
Notary Public

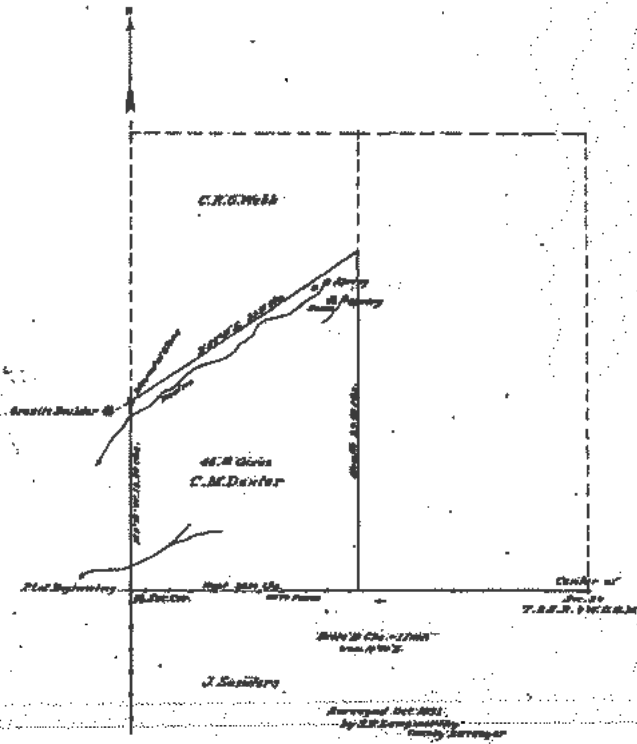
28 A full, true and correct copy of the original Recorded at request of
Jno. L. Merriam. Dec. 22nd 1891, at 4.21 P.M.

A. O. Davidson
County Recorder
By L. O. Alker
Deputy.

This Indenture, Made the Fifth day of October in the year
of our Lord one thousand eight hundred and ninety-one, Between
Earl R. L. Webbe of San Bernardino County, California the party
of the first part, and Charles M. Porter of the same place the party
of the second part, Witnesseth: That the said party of the first part
for and in consideration of the sum of sixteen hundred Dollars,
lawful money of the United States of America, to him in hand
paid by the said party of the second part, the receipt whereof is
hereby acknowledged, does by these presents grant, bargain, sell,
convey and confirm, unto the said party of the second part, and
to his heirs and assigns forever, all that certain lot, piece or
parcel of land situate, lying and being in the County of San
Bernardino, State of California, and bounded and particularly
described as follows, to wit:

Beginning at the one quarter corner common to sections
33 and 34, Township Two (2) South Range Four (4) West, S. B. M.
running thence North $0^{\circ} 15'$ W. along the west line of said section
34, sixteen and $\frac{50}{100}$ (16.50) chains to a stake in mound of rock,
thence N. $56^{\circ} 31'$ E. along the north westerly side of a ravine twenty-
three and $\frac{9}{100}$ ($23\frac{9}{100}$) chains to its intersection with the quarter quarter
line running through the center of the N.W. one quarter of said
section 34, thence south along said line twenty-nine and $\frac{60}{100}$ ($29\frac{60}{100}$)
chains to the center line of said section 34, thence west along said
center line Twenty (20) chains to point of beginning, according to
plat of said land annexed hereto and made a part of this
instrument.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



Together with the tenements, hereditaments and appurtenances thereto belonging, or in anywise appertaining, and also all estate, right, title and interest, at law and equity therein or thereto, including *to have* and to hold the same to the said Charles M. Dexter his heirs and assigns forever, and I do covenant with the said Charles M. Dexter and his legal representatives forever, that the said real estate is free from all incumbrances, and that I will and my heirs, executors and administrators shall warrant and defend the same to the said Charles M. Dexter his heirs and assigns forever, against the lawful claims and demands of all persons whomsoever. In Witness Whereof the said party of the first part has hereunto set his hand and seal the day and year first above written.

Signed, Sealed and Delivered in the presence of: } *Charles M. Dexter* (Seal)
S. P. Langworthy }
 State of California }
 County of San Bernardino }

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

hundred and 91, before me, S. U. Langworthy, a Notary Public in and for said County of San Bernardino, residing therein, duly commissioned and sworn, personally appeared Cecil H. G. Webb known to me to be the person described in, and whose name is subscribed to and who executed the within instrument, and he acknowledged to me that he executed the same. In Witness Whereof, I have hereunto set my hand and affixed my official seal, at my office in the County of San Bernardino, the day and year in this Certificate first above written.

Notarial Seal

S. U. Langworthy
Notary Public

25 A true and correct copy of the original recorded at request of U.S. Banking Co. Dec. 22nd 1891, at 7:22 A. M.

A. D. Davidson
County Recorder
By B. C. Aldre
Deputy

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

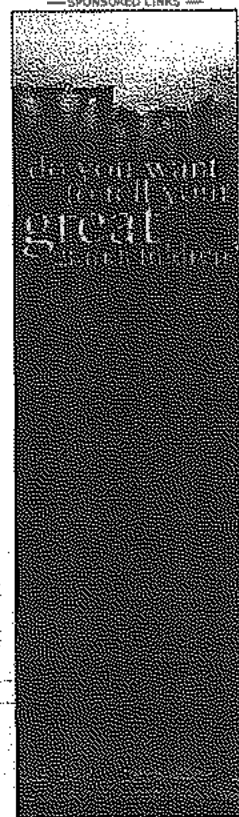


U.S. Civil War Soldiers, 1861-1865

Name:	Charles M. Dexter
Side:	Union
Regiment State/Origin:	Ohio
Regiment Name:	167 Ohio Infantry
Regiment Name Expanded:	167th Regiment, Ohio Infantry (National Guard)
Company:	A
Rank In:	Second Lieutenant
Rank In Expanded:	Second Lieutenant
Rank Out:	Second Lieutenant
Rank Out Expanded:	Second Lieutenant
Film Number:	M552 roll 27

Source Information:
 National Park Service. *U.S. Civil War Soldiers, 1861-1865* [database on-line]. Provo, UT, USA: The Generations Network, Inc., 2007. Original data: National Park Service, Civil War Soldiers and Sailors System, online <<http://www.itd.nps.gov/cwss/>>. acquired 2007.

Description:
 This database contains the names of approximately 6.3 million soldiers who served in the American Civil War. In addition to their names, information that may be listed for each soldier includes regiment, company, and rank. [Learn more...](#)



www.WebEnclosures.com
 Ads by Google

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Page No. 213

1870 Population numbered 1, 14, and 17 are not to be included in the total population. Schedule numbered 11, 12, 13, 16, 17, 20, and 21 are to be annexed to the 1870 population. The population of each city or town shall be by an estimate, not, etc.

SCHEDULE 1. Inhabitants in Delaware in the County of Delaware, State of Ohio, enumerated by me on the 17th day of June, 1870.
 Post Office: Delaware Geo. W. Cold Act. Marshal

No.	Name	Sex	Age	Color	Profession, Occupation, or Trade	Place of Birth	Years of Residence													
							1	2	3	4	5	6	7	8	9	10				
1	- Helton	M	27	W		Ohio														
2	- Frisvold	M	27	W		Ohio														
3	- Matilda	F	27	W		Ohio														
4	- Emma	F	27	W		Ohio														
5	Russ Jacob	M	27	W	Barber	New York													1	
6	Katharine Mary	F	27	W	Barber	Pennsylvania													1	
7	Amos Jacob	M	27	W	Barber	Ohio													1	
8	- Pauline	F	27	W	Keeping House	Ohio													1	
9	- Mary	F	27	W		Indiana													1	
10	- Jerry	M	27	W		Ohio													1	
11	David Jacob	M	27	W	Barber	New York													1	
12	- Abby	F	27	W	Keeping House	Virginia													1	
13	- Emma	F	27	W	Attending School	Ohio													1	
14	Thomas Jacob	M	27	W	Blacksmith	New York													1	
15	- Lelia	F	27	W	Keeping House	New York													1	
16	- Walter S	M	27	W		Massachusetts													1	
17	Mrs. Louisa May	F	27	W	Domestic Servt	Pennsylvania													1	
18	Richard Wm	M	27	W	Farmer	Pennsylvania													1	
19	- Sarah	F	27	W	Keeping House	Ohio													1	
20	- Sarah	F	27	W		Pennsylvania													1	
21	Smith Wm	M	27	W	Com. painter	Massachusetts													1	
22	- Amelia	F	27	W	Keeping House	Massachusetts													1	
23	- Abbie	F	27	W	Teacher	Massachusetts													1	
24	- William A	M	27	W	Education Store	Massachusetts													1	
25	- John C	M	27	W	Stimulus Book Store	Massachusetts													1	
26	- Sophie	F	27	W		Ohio													1	
27	William Emma	F	27	W	Attending School	Ohio													1	
28	Richard Jacob	M	27	W	General Bldg	Ohio													1	
29	- Mary A	F	27	W	Keeping House	Ohio													1	
30	Abigail Hannah	F	27	W	Attending College	Ohio													1	
31	John Jacob	M	27	W	Keeping House	Ohio													1	
32	- Abigail Wm	F	27	W	Attending School	Ohio													1	
33	- John Wm	M	27	W	Attending School	Ohio													1	
34	- Albert Wm	M	27	W		Ohio													1	
35	John P S	M	27	W	General Bldg	Pennsylvania													1	
36	- Lelia	F	27	W	Spring Street Bldg	Ohio													1	
37	- Frank S	M	27	W		Ohio													1	
38	- Abbie A	F	27	W		Ohio													1	
39	Phoebe Wm	F	27	W	General Bldg	Ohio													1	
40	John Robert	M	27	W	Editor	Ohio													1	

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

SCHEDULE No. 1.—POPULATION.

Department's District No. 6

Enumeration District No. 227

Place of Enumeration, Byroads Township Name of Institution, X
Name of Incorporated City, Town, or Village, within the above-named division, Shoreville City
Enumerated by me on the 17 day of June, 1900, Frank H. Hall

Ward of City, Princeton

Table with columns: NAME, SEX, AGE, RACE, NATIVITY, OCCUPATION, and various marital status indicators. Rows list individuals such as 'Schlemmer, G.', 'Schlemmer, Mary', etc., with their respective demographic data.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS
 THIRTEENTH CENSUS OF THE UNITED STATES 1910 - POPULATION

County: Alameda Precinct: Alameda Precinct Enumeration District: Alameda

Township or other division of county: Alameda Name of institution: Alameda Sex: Male Color: White

Serial	Name	Sex	Age	Marital Status	Race	Place of Birth	Date of Birth	Naturalization	Profession, Occupation, or Trade	Industry	Education		Literacy		Incapacitated		Military Service		Other	
											Years	Months	Years	Months	Years	Months	Years	Months	Years	Months
1	John	Male	35	Married	White	Alameda	1875	U.S. Born	Farmer	Alameda	8	0	0	0	0	0	0	0	0	0
2	Mary	Female	32	Married	White	Alameda	1878	U.S. Born	Homemaker	Alameda	8	0	0	0	0	0	0	0	0	0
3	John	Male	10	Single	White	Alameda	1900	U.S. Born	School	Alameda	0	0	0	0	0	0	0	0	0	0
4	Mary	Female	8	Single	White	Alameda	1902	U.S. Born	School	Alameda	0	0	0	0	0	0	0	0	0	0
5	John	Male	5	Single	White	Alameda	1905	U.S. Born	School	Alameda	0	0	0	0	0	0	0	0	0	0

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

In letter to Milton Santee Oct 9th 1885 -
H. J. Ruderick

Final Certificate No. 395

Homestead Application No. 1176

W. J. Ruderick 1882

LAND OFFICE

AT

New Angeles, Calif

1882

11/10

1884

Clerk

[Signature]

1884

1881

1882

1884

1885

(4-070.)

HOMESTEAD PROOF.

Final Affidavit Required of Homestead Claimants.

SECTION 2291 OF THE REVISED STATUTES OF THE UNITED STATES.

I, David R. G. Webb, having made a Homestead entry
of the W 1/2 of NW 1/4 of Sec 16 T 44 N R 49 W 1/2 of NE 1/4 of Sec 16 Section No. 34
in Township No. 2 E of Range No. 4 W, subject to entry at San

Augustus under section No. 2289 of the Revised Statutes
of the United States, do now apply to perfect my claim thereto by virtue of section No. 2291 of the
Revised Statutes of the United States; and for that purpose do solemnly swear that
I am an Ireland my intention to live on a citizen of the United States; that I have made actual settlement upon and have cultivated said
land, having resided thereon since the 10 day of March, 1875,
to the present time; that no part of said land has been alienated, except as provided in section 2288 of the
Revised Statutes; but that I am the sole *bona fide* owner as an actual settler; that I will bear true allegiance
to the Government of the United States; and further, that I have not heretofore perfected or abandoned
an entry made under the homestead laws of the United States.

David R. G. Webb

I, H. C. Ralph, Judge of the Superior Court of San of the Land Office at
Burnsville Co. Colo, do hereby certify that the above affidavit was subscribed
and sworn to before me this fifth day of January, 1882.

H. C. Ralph
Judge Superior Court

Electron.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

HOMESTEAD PROOF.

TESTIMONY OF CLAIMANT.

Cecil R. G. Webb, being called as a witness
 in his own behalf in support for his homestead entry for W 1/2 of NW 1/4 and
SE 1/4 of NW 1/4 and NE 1/4 of SW 1/4 of Sec 34 in T4
2 S 1 R 4 W S B Meridian, testifies as follows:

Ques. 1. What is your name? (Be careful to give it in full, correctly spelled, in order that it may be here written exactly as you wish it written in the patent which you desire to obtain.)

Ans. Cecil R. G. Webb

Ques. 2. What is your age?

Ans. Fifty-five years

Ques. 3. Are you the head of a family, or a single person; and, if the head of a family, of whom does your family consist?

Ans. Head of family consisting of one
maiden sister

Ques. 4. Are you a native-born citizen of the United States? If not, have you declared your intention to become a citizen, and have you obtained a certificate of naturalization? *

Ans. Not native but naturalized citizen of
US. Have declared my intention to become a citizen

Ques. 5. Are there any indications of coal, salines, or minerals of any kind on the land embraced in your homestead entry above described? (If so, state what they are, and whether the springs or mineral deposits are valuable.)

Ans. None

Ques. 6. Is the land more valuable for agricultural than mineral purposes?

Ans. Yes

NOTE.—At the time of making proof the party should be required to surrender his original homestead duplicate receipt, or file an affidavit accounting for the same.

* In case the party has been naturalized, a certified copy of his certificate of naturalization must be furnished. In cases of commuted homesteads it is sufficient if the party has declared his intention to become a citizen, in which case a certified copy of declaration of intention must be furnished.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

you have, give, as nearly as you can, the date thereof, and description of the land, and state whether the entry still subsists, or, if it has been canceled, state the cause of its cancellation.)

F.1.c

Ans.

No

Ques. 9. Have you sold the land or conveyed to any one your right and interest in the same; and, if so, to whom and for what purpose?

Ans.

No

Ques. 10. Does any one except yourself claim the land under the homestead or pre-emption laws?

Ans.

No

Ques. 11. When did you first make settlement on the said land?

Ans.

on March 1875

Ques. 12. When did you first establish a residence upon the land?

Ans.

on March 1875

Ques. 13. At the date you have given as being the date that you first established your residence upon the land, did you move thereon in person?

Ans.

Yes

Ques. 14. Up to what time have you resided on the land?

Ans.

To the present time

Ques. 15. Was your residence upon the land continuous during the period named?

Ans.

Yes

Ques. 16. If you had a family during said period of residence on the homestead, did your family reside thereon?

Ans.

Yes

Ques. 17. What improvements have you made or do you possess on the land? (Describe them.)

Ans.

Dwelling house, stable, and other out houses
few vines and ^{fruit} trees planted, water ditch

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

See letter to Milton Santee Oct 9th 1885
H. J. Ruanico *[Signature]*

Home Certificate No. 395
Home and Application No. 676
W. R. W. W. W. 1882

LAND OFFICE

AT

San Angeles Calif
for survey 1882

Section 31 Town 20 S Range 11 W
16 N
Jan 2 1884

Approved [Signature] Clerk

Division [Signature]
Registered Feb. 20th 1884

Record Vol 2 page 81
41258
March 14 - 1884
with note - March 24 1884
[Signature]

(4-070.)

HOMESTEAD PROOF.

Final Affidavit Required of Homestead Claimants.

SECTION 2291 OF THE REVISED STATUTES OF THE UNITED STATES.

I, Lucid P. Webster, having made a Homestead entry of the W 1/2 of NW 1/4 of SE 1/4 of NW 1/4 of NE 1/4 of SW 1/4 of Sec 34 in Township No. 2 S of Range No. 4 E, subject to entry at San

Angelus under section No. 2289 of the Revised Statutes

of the United States, do now apply to perfect my claim thereto by virtue of section No. 2291 of the

Revised Statutes of the United States; and for that purpose do solemnly swear that

Lucid P. Webster my intention to become a citizen of the United States; that I have made actual settlement upon and have cultivated said

land, having resided thereon since the day of March, 1875,

to the present time; that no part of said land has been alienated, except as provided in section 2288 of the

Revised Statutes; but that I am the sole bona fide owner as an actual settler; that I will bear true allegiance

to the Government of the United States; and further, that I have not heretofore perfected or abandoned

an entry made under the homestead laws of the United States.

Lucid P. Webster

I, H. C. Ralph Judge of the Superior Court of San Bernardino Co. Cal., of the Land Office at San Bernardino, do hereby certify that the above affidavit was subscribed

and sworn to before me this fifteenth day of January, 1882.

H. C. Ralph
Judge Superior Court

Electro.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

HOMESTEAD PROOF.

TESTIMONY OF CLAIMANT.

Becil R. G. Webb, being called as a witness
 in his own behalf in support for his homestead entry for the 1/2 of the W. 1/4 and
SE 1/4 of NW 1/4 and NE 1/4 of SW 1/4 of Sec 34 in T4
2 S 1 R 4 W S B Meridian, testifies as follows:

Ques. 1. What is your name? (Be careful to give it in full, correctly spelled, in order that it may be here written exactly as you wish it written in the patent which you desire to obtain.)

Ans. Becil R. G. Webb

Ques. 2. What is your age?

Ans. Five years

Ques. 3. Are you the head of a family, or a single person; and, if the head of a family, of whom does your family consist?

Ans. Head of family consisting of one
maiden sister

Ques. 4. Are you a native-born citizen of the United States? If not, have you declared your intention to become a citizen, and have you obtained a certificate of naturalization? *

Ans. Not native but naturalized citizen of
US. Have declared my intention to become a citizen

Ques. 5. Are there any indications of coal, salines, or minerals of any kind on the land embraced in your homestead entry above described? (If so, state what they are, and whether the springs or mineral deposits are valuable.)

Ans. No

Ques. 6. Is the land more valuable for agricultural than mineral purposes?

Ans. Yes

NOTE.—At the time of making proof the party should be required to surrender his original homestead duplicate receipt, or file an affidavit accounting for the same.

* In case the party has been naturalized, a certified copy of his certificate of naturalization must be furnished. In cases of commuted homesteads it is sufficient if the party has declared his intention to become a citizen, in which case a certified copy of declaration of intention must be furnished.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

you have, give, as nearly as you can, the date thereof, and description of the land, and state whether the entry still subsists, or, if it has been canceled, state the cause of its cancellation.)

Ans.

No

Ques. 9. Have you sold the land or conveyed to any one your right and interest in the same; and, if so, to whom and for what purpose?

Ans.

No

Ques. 10. Does any one except yourself claim the land under the homestead or pre-emption laws?

Ans.

No

Ques. 11. When did you first make settlement on the said land?

Ans.

on March 1875

Ques. 12. When did you first establish a residence upon the land?

Ans.

on March 1875

Ques. 13. At the date you have given as being the date that you first established your residence upon the land, did you move thereon in person?

Ans.

Yes

Ques. 14. Up to what time have you resided on the land?

Ans.

To the present time

Ques. 15. Was your residence upon the land continuous during the period named?

Ans.

Yes

Ques. 16. If you had a family during said period of residence on the homestead, did your family reside thereon?

Ans.

Yes

Ques. 17. What improvements have you made or do you possess on the land? (Describe them.)

Ans.

Dwelling house, stable, and other out houses
few vines and ^{fruit} trees planted, water ditch

NOTE.—The officer before whom the testimony is taken should call the attention of the witness to the following section of the Revised Statutes, and state to him that it is the purpose of the Government, if it be ascertained that he testifies falsely, to prosecute him to the full extent of the law.

TITLE LXX.—CRIMES.—CH. 4.

SEC. 5392. Every person who, having taken an oath before a competent tribunal, officer, or person, in any case in which a law of the United States authorizes an oath to be administered, that he will testify, declare, depose, or certify truly, or that any written testimony, declaration, deposition, or certificate by him subscribed is true, willfully and contrary to such oath states or subscribes any material matter which he does not believe to be true, is guilty of perjury, and shall be punished by a fine of not more than two thousand dollars, and by imprisonment, at hard labor, not more than five years, and shall, moreover, thereafter be incapable of giving testimony in any court of the United States until such time as the judgment against him is reversed. [See §1750.]

State of California
San Bernardino County

I, A. F. Mc Kenney, Clerk of the Superior Court of said County of San Bernardino, which is a court of record, do certify that H. B. Ralph is and has been continuously since the 5th day of January 1880 the judge of said Superior Court duly authorized to administer oaths.

Witness my hand and the seal of said court given this 5th day of January 1882.

A. F. Mc Kenney,
Clerk.

By S. M. Wall
Deputy

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

least, last past, and within the State of California for one year, at least, last past; and that during all of said time he has behaved as a man of good moral character, attached to the principles of the Constitution of the United States, and well disposed to the good order and happiness of the same; and it also appearing to the Court, by competent evidence, that the said applicant has heretofore, and more than two years since, and in due form of law, declared his intention to become a citizen of the United States; and having now here, before this Court, taken an oath that he will support the Constitution of the United States of America, and that he doth absolutely and entirely renounce and abjure all allegiance and fidelity to every foreign Prince, Potentate, State or Sovereignty whatever, and particularly to

Victoria Queen of Great Britain and Ireland

It is therefore, Ordered Adjudged and Decreed, that the said Cecil

R. G. Webbe

be, and is hereby admitted and

declared to be a Citizen of the United States of America.

H. C. Rolfe

Judge.

Signature: C. A. Webbe

Office of the Clerk of the Superior Court, of the

County of San Bernardino State of California.

SS.

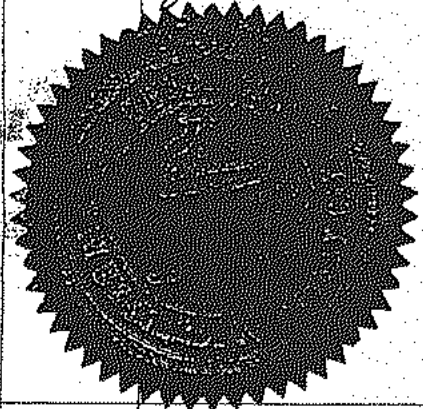
I, W. F. Holcomb, Clerk of the Superior Court, of the County of San Bernardino State of California, said Court being a Court of Record, having a common law jurisdiction, and a Clerk and Seal, do certify that the above is a true copy of the act of Naturalization of Cecil R. G. Webbe as the same appears upon the Records of said Court now in my office in Book 3 of Minutes of said Court.

In Testimony Whereof, I have hereunto set my hand and affixed the Seal of said Court, this 30th day of November in the year of our Lord one thousand eight hundred and eighty three and in the year of our Independence the one hundred and eighth.

W. F. Holcomb,

Clerk,

By Geo. L. Hison, Deputy Clerk.



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Notice for Publication

Land Office at Los Angeles, Cal.
Notice is hereby given that the following named settler has filed notice of intention to make final proof in support of his claim, and that said proof will be made before the Honorable Superior Judge at San Bernardino, Cal. on January 6th, 1882, viz: Cecil R. R. Webb, Homestead No. 679, for the W. 1/4 of N. 1/4 of E. 1/4 of N. W. 1/4 of S. 1/4 of T. 2 S., R. 2 E., S. 14 N. He names the following witnesses as persons whose continuous residence upon, and cultivation of, said land, viz:

(4-227.)

ATE AS TO POSTING OF NOTICE

JOHN WILSON, Riverside, Cal.
J. P. Greve, San Bernardino Co. Cal.
O. WILSON, do do
E. M. GARDNER, do do
CHAS. R. JOHNSON, Register.

Land Office at Los Angeles, Calif.,
January 5, 1882

I, Blair R. Johnson, Register, do hereby certify that a notice, a printed copy of which is hereto attached, was by me posted in a conspicuous place in my office for a period of thirty days, I having first posted said notice on the 3rd day of December, 1881.

Blair R. Johnson
Register

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Appendix D
Energy Calculations

Energy Use Summary

Construction Phase (gallons/construction period)		Gasoline	Diesel		
Construction Vehicles		10,413	10,457		
Worker Trips		4,373	19		
Vendor Trips		1,070	17		
Haul Trucks		15	12,642		
Total		15,871	23,135		

Operations Phase (gallons/year)		Gasoline	Diesel	Natural Gas (kBTU/yr)	Electricity (kWh/yr)
Condominiums		120,409	1,533	2,447,660	609,342
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
All Land Uses		120,409	1,533	2,447,660	609,342

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Utilities

	Natural Gas Use	Electricity Use
Land Use	kBTU/yr	kWh/yr
Condominiums	2,447,660	609,342
	0	
	0	
	0	
	0	
	0	
Total	2,447,660	609,342

Offroad Construction Equipment Energy Use

PhaseName	OffRoadEquipmentType	OffRoadEquipmentUnitA		HorsePower	Load Factor	Horsepower Category	Num Days	Year	Fuel Consumption Rate		Total Fuel Consumption (gal/construction period)
		mount	UsageHours						(gal/hour)	Fuel Type	
Site Preparation	Rubber Tired Dozers	1	8	247	0.4	300	10	2022	4.5	Diesel	145
Site Preparation	Tractors/Loaders/Backhoes	0	8	97	0.37	100	10	2022	1.6	Diesel	0
Grading	Excavators	0	8	158	0.38	175	44	2022	2.9	Diesel	0
Grading	Graders	0	8	187	0.41	175	44	2022	3.2	Diesel	0
Grading	Rubber Tired Dozers	1	8	247	0.4	300	44	2022	4.5	Diesel	639
Grading	Scrapers	2	8	367	0.48	300	44	2022	5.6	Diesel	1,878
Grading	Tractors/Loaders/Backhoes	0	8	97	0.37	100	44	2022	1.6	Diesel	0
Building Construction	Cranes	1	7	231	0.29	300	264	2022	3.3	Diesel	1,760
Building Construction	Forklifts	3	8	89	0.2	100	264	2022	2.0	Diesel	2,539
Building Construction	Generator Sets	1	8	84	0.74	100	264	2022	5.2	Gasoline	8,123
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	100	264	2022	1.6	Diesel	3,263
Building Construction	Welders	1	8	46	0.45	50	264	2022	2.4	Gasoline	2,290
Paving	Pavers	1	8	130	0.42	100	10	2022	1.7	Diesel	58
Paving	Paving Equipment	1	8	132	0.36	100	10	2022	1.6	Diesel	47
Paving	Rollers	1	8	80	0.38	100	10	2022	1.7	Diesel	51
Architectural Coating	Air Compressors	1	6	78	0.48	100	20	2022	1.3	Diesel	76
									Total	Gasoline	10,413
									Total	Diesel	10,457

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Appendix E
Geotechnical Report



LGC GEO-ENVIRONMENTAL, INC.

PRELIMINARY GEOTECHNICAL INVESTIGATION FOR THE PROPOSED SINGLE-FAMILY RESIDENTIAL DEVELOPMENT, TENTATIVE TRACT MAP NO. 37557, CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA.

***Dated: September 22, 2018
Project No. G18-1648-10***

***Prepared For:
Shizao Zheng
1378 West Zhorgshan Road
Ningbo City, Zhejiang Province
China***

27570 Commerce Center Drive, Suite. 128, Temecula, California 92590
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LGC GEO-ENVIRONMENTAL, INC.
 GEOTECHNICAL * ENVIRONMENTAL * MATERIALS TESTING * SWPPP

September 22, 2018

Project No. G18-1648-10

Shizao Zheng

1378 West Zhongshan Road
 Ningbo City, Zhejiang Province
 China

Subject: Preliminary Geotechnical Investigation for the Proposed Single-Family Residential Development, Tentative Tract Map No. 37557, City of Moreno Valley, Riverside County, California.

LGC Geo-Environmental, Inc. (LGC) is pleased to submit herewith our preliminary geotechnical investigation report for the proposed single-family residential development, Tentative Tract Map No. 37557, City of Moreno Valley, Riverside County, California.

This report presents the results of our review of published geologic/geotechnical reports, maps, and aerial photographs relative to the area that includes the site; our field exploration, geologic mapping, and laboratory testing; and geotechnical and geologic judgment, opinions, conclusions and preliminary recommendations associated with the proposed residential development.

Based on the results of the scope of our work and our review of the conceptual grading plan tract map, it is our opinion that the subject site is suitable for the proposed residential development, provided that the recommendations presented herein are incorporated into the design and implemented during grading and construction. LGC should review the final grading plans, as well as any foundation/structural plans when those become available, and revise the recommendations presented herein, if necessary.

LGC is pleased to have been retained to be of service to you during the design stages of this project. Should you have any questions regarding the contents of this report or should you require additional information, please do not hesitate to contact us.

Respectfully submitted,

LGC Geo-Environmental, Inc.

Robert L. Gregorek II, CEG 1257
 Certified Engineering Geologist

AJR/RLG/JPN

Distribution: (4) Addressee



John P. Nielsen, GE 641
 Geotechnical Engineer



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Appendix D – General Earthwork and Grading Specifications (Rear of Text)

1.0 INTRODUCTION

This report presents the results of LGC Geo-Environmental, Inc.'s (LGC) geotechnical investigation for the proposed single-family residential development, Conceptual Grading Plan Tract Map No. 37557, City of Moreno Valley, Riverside County, California. The purpose of this geotechnical investigation was to evaluate the soil engineering properties of the surface and subsurface soil conditions on the site, and to provide geotechnical recommendations with respect to grading, construction, foundation design and other relevant geotechnical aspects related to the proposed residential development. The referenced conceptual grading plan tract map which was provided to LGC, was utilized as the base map for our Geotechnical Map (Plate 1) of the site.

Our scope of services included:

- A review of available published geologic/geotechnical literature, geologic maps, and aerial photographs pertinent to the site (Appendix A).
- Geologic mapping of the site.
- Subsurface exploration consisting of the excavating, sampling, and logging of ten (10) exploratory trenches, TR-1 through TR-8 and IT-1 through IT-2, to depths ranging from approximately 3.0 to 13.5 feet below the existing ground surface. All of the trenches were excavated using a backhoe. The trenches were excavated to evaluate the general characteristics of the subsurface geologic/geotechnical conditions on the project site, including classification of site soil, determination of depth to groundwater (if present), and to obtain representative soil samples.
- Laboratory testing of representative soil specimens collected during our subsurface exploration (Appendix C).
- Geotechnical engineering and geologic analyses of the data with respect to the proposed single-family development.
- Preparation of General Earthwork and Grading Specifications (Appendix D).
- Preparation of this report presenting our findings, conclusions and preliminary geotechnical design recommendations for the proposed development.

1.1 Proposed Construction and Grading

The referenced conceptual grading plan tract map prepared by Sikand Engineering dated June 13, 2018 indicates that the proposed development will consist of 24 single-family residential lots with associated roadways, walk ways, and hardscape, landscape areas and a water quality basin and a debris basin. It is anticipated that the structures will be up to two-stories, with wood/steel frame and masonry wall construction and some masonry block walls. This type of construction provides for relatively moderate to heavy loads imposed on the underlying foundation soil.

The referenced 80-scale tentative tract map indicates proposed cut and fill depths will be generally be approximately 32 and 22 feet, respectively. Proposed maximum cut and fill slope heights are about 55 feet and 22 feet respectively, at slope ratios of 2:1 (h:v) or flatter.

1.2 Location and Site Description

The site is located north of Jennings Court, west of Morton Road and east of the mountains at the base, in the City of Moreno Valley, in Riverside County, California. The site is irregular in shape and is approximately 32.8-acres in size. The site is moderately covered with annual weeds and shrubs, some cluster of trees and scatter boulders, mainly at the base of the mountain. The site also contains some scattered trash and debris. The general location and configuration of the site is shown on the Site Location Map (Figure 1).



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

© 2018 Google Inc., Google Earth, Aerial Imagery™.



FIGURE 1
SITE LOCATION MAP

Project Name	TENTATIVE TRACT MAP NO. 37557
Project No.	G18-1648-10
Geol./ Eng.	RLG/JPN
Scale	NOT TO SCALE
Date	SEPTEMBER 2018

1.3 Topography and Drainage

The topography of the site is undulated with approximately four washes running down the site from the northeast. Elevations range from approximately 2,040 feet above mean sea level (msl) in the northeastern portion of the site to approximately 1,588 feet msl in the western portion of the site.

1.4 Existing Improvements and Vegetation

The site has not been previously developed. Vegetation consists of a moderate to dense cover of annual weeds/shrubs

1.5 Research of Previous Geological and Geotechnical Data

LGC researched published and unpublished geotechnical reports and geologic data (Appendix A). Pertinent site and geologic information were incorporated into the conclusions and recommendations presented in this report.

1.6 Aerial Photograph Analysis

Google Earth Pro aerial imagery (from 1994 to 2018) was evaluated for the subject site and surrounding vicinity. The available information, as it pertains to the geologic and geotechnical issues of the proposed single-family residence, has been incorporated into the conclusions and recommendations presented in this report.

Our review of the aerial photographs indicates that the site has been a vacant property from 1994 to the present.

2.0 FIELD INVESTIGATION

2.1 Geologic Mapping

Surface geologic mapping of the site and accessible surrounding areas was completed by a geologist from this firm during September 2018, utilizing the referenced Conceptual Grading Plan Tract Map No. 37557 for plotting geologic observations. This information is plotted on the enclosed Geotechnical Map (Plate 1).

2.2 Field Exploration

Ten (10) exploratory trenches, TR-1 through TR-8 and IT-1 through IT-2, were excavated with a backhoe on September 4, 2018 and September 6, 2018 to depths of approximately 3.0 to 13.5 feet below the existing ground surface. The trenches were excavated to evaluate the general characteristics of the subsurface geologic/geotechnical conditions beneath the site, those include classification of site soil and bedrock, determination of groundwater elevations (if present), and the collection of representative soil samples.

Prior to our subsurface work, an underground utilities clearance was obtained from Underground Services Alert of Southern California. At the conclusion of the subsurface exploration, the trenches were backfilled with on-site materials with some compactive effort. Minor settlement of the backfill soil may occur over time.

Earth materials recovered from beneath the site were classified and logged by a geologist from LGC in accordance with the visual-manual procedures of the Unified Soil Classification System. The approximate locations of the exploratory borings and trenches are shown on the Geotechnical Map (Plate 1) and descriptive logs are presented in Appendix B.

Bulk samples of soil associated with the exploratory trenches were collected for laboratory testing. Bulk samples consisted of selected soil and bedrock materials obtained at various depth intervals from the exploratory trenches.

2.3 Laboratory Testing

During our subsurface exploration, relatively undisturbed and bulk soil samples were retained for laboratory testing. Laboratory tests were performed on selected representative samples of onsite soil materials and included maximum dry density and optimum water content, expansion index, sulfate content, chloride content, pH, resistivity, and shear strength. A brief description of the laboratory test results and test data are presented in Appendix C.

3.0 FINDINGS

3.1 Regional Geologic Setting

The site is located in the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges are characterized by steep, elongated valleys that trend west to northwest. Locally the northwest-trending topography is controlled by the Elsinore fault zone, which extends from the San Gabriel River Valley southeasterly to the United States/Mexico border. The Santa Ana Mountains lie along the western side of the Elsinore fault zone, while the Perris Block is located along the eastern side of the fault zone. These mountainous regions are underlain by Pre-Cretaceous, metasedimentary and metavolcanic rocks and Cretaceous plutonic rocks of the Southern California Batholith. Tertiary and Quaternary rocks are generally comprised of non-marine sediments consisting of sandstone, mudstones, conglomerates, and occasional volcanic units. A map of the regional geology is presented on the Regional Geologic Map (Figure 2).

3.2 Local Geology and Soil Conditions

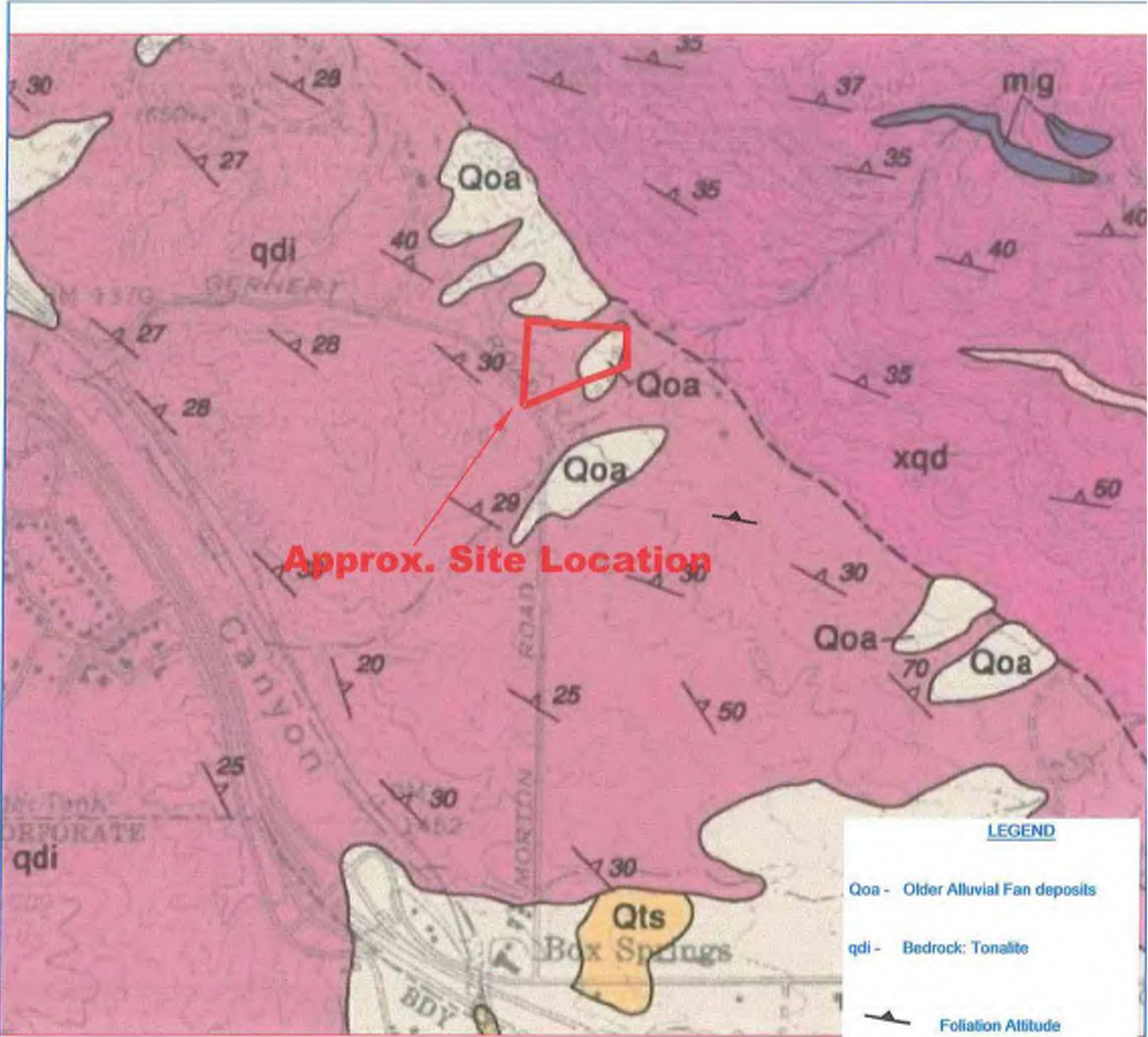
Based on our review of available geological and geotechnical literature, current field mapping, exploratory trenches and exploratory borings conducted at the site, it is our understanding that the site is primarily underlain by undocumented artificial fill, older alluvial fan deposits, and Bonzal Tonalite bedrock. Each unit is described in greater detail below and presented within the exploratory trench and boring logs (Appendix B). The approximate locations of the observed geologic units are depicted on the Geotechnical Map (Plate 1).

Artificial Fill, Undocumented (Afu): During our subsurface exploration, artificial fill (undocumented) was encountered down to depths ranging from approximately 2.0 feet to 5.5 feet. The artificial fill generally consists of silty sand and clayey silt and is various shades of brown, red and black; very fine to medium grained with some coarse grains; coarse and very coarse rock fragments; dry to damp; medium dense/firm; contains some pores; root hairs; desiccated; with traces of concrete pieces.

Topsoil (No Map Symbol): Topsoil was present within portions of the site overlying the older alluvial deposits or bedrock. The topsoil consisted of silty sand which was generally very fine to coarse grained, various shades of red and brown, dry to damp, loose to medium dense, desiccated with some pores and roots. These materials were generally 0.5 foot to 2.0 foot thick where explored.

Alluvium (Qal): Alluvium is present within drainage courses on the site and consist of silty sand which is generally very fine to coarse grained, various shades of red and brown, dry to damp, loose to medium dense with some rock fragments, pores, and roots. The alluvium where explored is about 2.0 feet to 7.0 feet deep and could be as much as 10.0 feet deep.

Older Alluvial Fan Deposits (Qoa): Older alluvial fan deposits encountered on the site during our subsurface exploration, were observed to range from the surface approximately 2.0 feet to 6.5 feet deep to as deep as 12 feet. The older alluvial fan deposits generally consist of silty sand and is



GEOLOGIC MAP OF THE RIVERSIDE EAST/SOUTH 1/2 IF SAN BERNARDINO SOUTH QUADRANGLES, SAN BERNARDINO AND RIVERSIDE COUNTY, CALIFORNIA
 By Thomas W. Dibble, Jr., 2003 Edited by John A. Minch



FIGURE 2
 REGIONAL GEOLOGIC MAP

Project Name	TENTATIVE TRACT MAP NO. 37557
Project No.	G18-1648-10
Geol./ Eng.	RLG/JPN
Scale	NOT TO SCALE
Date	SEPTEMBER 2018

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

characterized as being various shades of brown, green, gray, and red; dry; medium to very dense; very fine to medium grained with coarse grains; pinhole pores; root hairs; with oxidation staining. Portions of the upper 1.0 foot to 2.0 foot are weathered.

Bedrock: Bonzal Tonalite (Odi) – Bedrock of the Peninsular Ranges was present at the near surface, but mostly below the topsoil, alluvium and older alluvial fan deposits at depths of about 0.5 feet to 12.0 feet. The bedrock consists of quartz diorite. The bedrock was slightly to moderately weathered; various shades of black, orange, gray, yellow, brown and white; dry to damp; moderately hard to very hard; friable; fine to very coarse grained; with oxidation staining; and manganese staining.

3.3 Landslides

Our review of geologic literature did not indicate the presence of landslides on or directly adjacent to the site.

3.4 Groundwater

Groundwater was not encountered during the subsurface exploration performed for this report. Our review of the California Department of Water Resources, Water Data Library 2018 online database indicates historical depths of groundwater approximately four miles away from the general site area is about 73 feet below the existing ground surface at an elevation of approximately 1,638 above mean sea level (Well ID: Station 335628N1171932W001).

3.5 Caving

Caving was not encountered in the exploratory trenches. Caving may occur within excavations made into the friable portions of the alluvium, older alluvial fan deposits and weathered bedrock.

3.6 Surface Water

Surface water runoff relative to project design is the purview of the project civil engineer and should be designed to be directed away from all structures and walls.

3.7 Faulting

The geologic structure of the Southern California area is mainly dominated by northwest-trending faults associated with the San Andreas system. Faults, such as the Whittier, Elsinore, San Jacinto and San Andreas, are major faults in this system and are known to be active and may produce moderate to strong ground shaking during an earthquake. In addition, the San Andreas, Elsinore and San Jacinto faults are known to have ruptured the ground surface in historic times.

The following table is comprised of a list of the significant faults located within 20 miles of the proposed project site. We have also included the Maximum Earthquake Magnitude predicted for each of these faults.

TABLE 1
Significant Faults in Proximity of the Project Site

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE (mi)	MAXIMUM EARTHQUAKE MAGNITUDE (Mw)
San Jacinto-San Bernardino	5.2	6.7
San Jacinto-San Jacinto Valley	5.6	6.9
San Andreas-San Bernardino	14.9	7.3
San Andreas-Southern	14.9	7.4
Elsinore-Glen Ivy	18.5	6.8
Chino-Central Ave (Elsinore)	19.0	6.7
Cucamonga	19.4	7.0

Source: EQFAULT for Windows Version 3.00b

Active, potentially active, or inactive faults are not known to project through the site. The site does not lie within an Alquist-Priolo Earthquake Fault Hazard Zone as defined by the State of California in the Alquist-Priolo Earthquake Fault Hazard Zoning Act or a Riverside County Fault Zone Map. The possibility of damage to structures or site improvements because of ground rupture is considered negligible because active faults are not known to cross the site.

3.8 Seismicity

Secondary effects of seismic shaking resulting from large earthquakes on the major faults in the southern California region, which may affect the site, include soil liquefaction and dynamic settlement. Liquefaction is a seismic phenomenon in which loose, saturated, granular soil behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: 1) groundwater within 50 feet of the ground surface 2) low density non-cohesive (granular) soil; and 3) high-intensity ground motion. Studies indicate that saturated, loose to medium dense, near surface cohesionless soil exhibit the highest liquefaction potential, while dry, dense, cohesionless soil and cohesive soil exhibit low to negligible liquefaction potential.

Other secondary seismic effects include shallow ground rupture, seiches, and tsunamis. In general, these secondary effects of seismic shaking are a possibility throughout the Southern California region and are dependent on the distance between the site and causative fault and the onsite geology. A risk assessment of these secondary effects is provided in the following sections.

3.9 Settlement Analysis

The results of our subsurface exploration and laboratory testing indicate the site is underlain by approximately 2 feet to 7 feet to possibly up to 10 feet of potentially compressible and/or hydro-collapsible soil, consisting of artificial fill, undocumented, topsoil, alluvium, weathered older alluvial fan deposits and weathered bedrock. These materials exhibit the potential to settle or hydro-consolidate under the surcharge of proposed fill loads and anticipated future structural loads.

In areas where overexcavation to competent underlying older alluvial fan deposits or bedrock is accomplished, total settlement of about 0.50-inch, and a differential settlement of about 0.25-inch over a distance of about 40 feet could be anticipated.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 General

Based on the results of our current geotechnical investigation, it is our opinion that the proposed residential development, as indicated on the conceptual grading plan tract map, is feasible from a geotechnical and geologic standpoint, provided that the following recommendations are incorporated into the design criteria and project specifications and implemented during site grading and during construction. When actual grading plans for the site and foundation/structural plans for the proposed development are available, a comprehensive plan review should be performed by LGC. Depending on the results, additional recommendations may be necessary to provide updated geotechnical design parameters for both earthwork and foundations. Grading should be conducted in accordance with local codes, the recommendations within this report, and future plan reviews. It is also our opinion that the proposed construction and grading will not adversely impact the geologic stability of adjoining properties.

The following is a summary of the primary geotechnical factors determined from our geotechnical investigation.

- The site is underlain by undocumented artificial fill, topsoil, alluvium, older alluvial fan deposits and bedrock.
- Landslides are not known to impact the site.
- Groundwater are not considered a constraint for the proposed development.
- The potential for liquefaction is considered negligible because of shallow depths to very dense older alluvial fan deposits and hard bedrock.
- Active or potentially active faults are not known to exist on the site.
- Laboratory test results of the upper soil and bedrock indicate a very low expansion potential and negligible potential for soluble sulfate effects on normal concrete and chloride effects on reinforcing steel.
- The majority of the site is underlain by approximately 2 feet to 7 feet to as much as 10 feet locally of undocumented artificial fill, topsoil, alluvium, weathered older alluvial fan deposits and weathered bedrock which may be prone to potential intolerable post-grading settlement and/or hydroconsolidation, under the surcharge of the future proposed structural loads and/or fill loads. These materials should be overexcavated to underlying competent older alluvial fan deposits or bedrock.
- The existing onsite soil from a geotechnical perspective, appear to be suitable material for use as fill, provided those are relatively free from rocks (larger than 12 inches in maximum dimension), construction debris, and organic material. It is anticipated that the onsite soil may be excavated with conventional heavy-duty construction equipment.

5.0 GEOLOGIC CONSIDERATIONS

5.1 Slopes

Cut slopes and fill slopes to the proposed slope heights and slope ratios of approximately 2:1 (H:V) or flatter and should be grossly and surficially stable.

5.2 Faulting

Geologic hazards related to fault rupture are not known or not detected during our field exploration and site reconnaissance to be present at the site.

5.3 Groundwater

Adverse effects on the proposed development resulting from groundwater are not anticipated.

5.4 Subsidence

In consideration of the anticipated grading, recommended overexcavations, proposed structures and improvements, and subsurface material types and their conditions, unfavorable ground subsidence is not anticipated. This should be confirmed with additional consolidation testing in the older alluvial fan deposits.

5.5 Landsliding

Landslides or surface failures were not observed at or directly adjacent to the site. As a result, the probability of the site being affected by landslides is considered nil.

5.6 Ground Rupture

Ground rupture because of active faulting is not likely to occur on site because of the absence of known active fault traces on the site. Cracking because of shaking from distant seismic events is not considered a significant hazard, although it is a possibility at any site.

5.7 Rock Fall

The potential for rock fall is considered moderate, due to the close proximity of the mountainside. See referenced report in Appendix A.

5.8 Tsunamis and Seiches

Based on the elevation of the site with respect to sea level and its distance from large open bodies of water, the potentials for seiche and/or tsunami is considered to be negligible.

6.0 SEISMIC-DESIGN CONSIDERATIONS

6.1 Ground Motions

The site will probably experience ground shaking from moderate to large size earthquakes during the life of the proposed development. Furthermore, it should be recognized that the Southern California region is an area of high seismic risk, and that it is not considered feasible to make structures totally resistant to seismic-related hazards.

Structures within the site should be designed and constructed to resist the effects of seismic ground motions as provided in the 2016 CBC, Section 1613. The method of design is dependent on the seismic zoning, site characterizations, occupancy category, building configuration, type of structural system, and building height.

The following seismic design parameters, presented in Table 2, were developed based on the CBC 2016 and should be used for the proposed structures. A site coordinate of 33.8066° N, 117.1195° W was used to derive the seismic parameters presented below.

TABLE 2
Seismic Design Soil Parameters

SEISMIC DESIGN SOIL PARAMETERS (2016 CBC Section 1613)	
Site Class Definition ASCE 7; Chapter 20 (Table 20.3-1)	D
Mapped Spectral Response Acceleration Parameter S_s (for 0.2 second) (Figure 1613.5.3.(1))	1.51
Mapped Spectral Response Acceleration Parameter, S_1 (for 1.0 second) (Figure 1613.5.3.(2))	0.64
Site Coefficient F_a (short period) [Table 1613.3.3.(1)]	1.0
Site Coefficient F_v (1-second period) [Table 1613.3.3.(2)]	1.5
Adjusted Maximum Considered Earthquake (MCE) Spectral Response Acceleration Parameter S_{MS} (short period) (Eq. 16-37)	1.51
Adjusted Maximum Considered Earthquake (MCE) Spectral Response Acceleration Parameter S_{M1} (1-second period) (Eq. 16-38)	0.96
Design Spectral Response Acceleration Parameter, S_{DS} (short period) (Eq. 16-39)	1.00
Design Spectral Response Acceleration Parameter, S_{D1} (1-second period) (Eq. 16-40)	0.64
Mean Peak Ground Acceleration (PGA_m)	0.59

6.2 ***Secondary Seismic Hazards***

Secondary effects of seismic activity normally considered as possible hazards to a site include several types of ground failure, as well as induced flooding. Various general types of ground failures which might occur as a consequence of severe ground shaking of the site include liquefaction, landsliding, ground subsidence, ground lurching, and shallow ground rupture. The probability of occurrence of each type of ground failure depends on the severity of the earthquake, distance from faults, topography, subsoil and groundwater conditions, in addition to other factors. Based on the proposed grading and recommended overexcavation of potentially compressible materials within areas of proposed development, the secondary effects of liquefaction and other seismic activity noted above are considered unlikely at the site.

Seismically induced flooding, which might be considered a potential hazard to a site, normally includes flooding because of a tsunami (seismic sea wave), a seiche (i.e., a wave-like oscillation of the surface of water in an enclosed basin that may be initiated by a strong earthquake) or failure of a major reservoir or retention structure upstream of the site. The site is located several miles inland from the nearest coastline of the Pacific Ocean at an elevation in excess of approximately 1630 feet above msl, the potential for seismically induced flooding because of tsunami inundation is considered nonexistent. Enclosed bodies of water do not lie adjacent to the site, the potential for seiche induced flooding at the site is considered nonexistent.

7.0 GEOTECHNICAL DESIGN PARAMETERS

7.1 ***Shrinkage/Bulking and Subsidence***

Volumetric changes in earth quantities occur when excavated onsite soil are replaced as properly compacted fill. The following table, Table 3, is an estimate of the shrinkage and bulking factors for the various geologic units present onsite. These estimates are based on in-place densities of the various materials and on the estimated average degree of relative compaction that will be achieved during grading.

TABLE 3
Estimated Shrinkage/Bulking

<i>GEOLOGIC UNIT</i>	<i>SHRINKAGE PERCENT</i>
Artificial Fill, Undocumented	6% to 15%
Alluvium	10% to 15%
Topsoil	10% to 15%
Older Alluvial Fan Deposits (Qoa)	9% to 13%
<i>GEOLOGIC UNIT</i>	<i>BULKING PERCENT</i>
Bedrock: Bonzal Tonalite	0% TO 10%

Subsidence of the older alluvial fan deposits and bedrock, because of recompaction of exposed soil or bedrock prior to fill placement, and placement of proposed fills, is estimated to be about 0.15 to 0.20 feet.

The above estimates of shrinkage are intended as an aid for project engineers in determining earthwork quantities. **However, these estimates should be used with some caution since they are not absolute values.** These are preliminary rough estimates which may vary with depth of removal, stripping losses, field conditions at the time of grading, etc. Handling losses, and reduction in volume due to removal of oversized material, are not included in the estimates.

7.2 Excavation Characteristics

The following excavation characteristics of the various material types at the site have been developed based on LGC's geologic mapping and experience with these materials in the area and are presented in Table 4 below:

TABLE 4
Excavation Characteristics

<i>GEOLOGIC UNIT</i>	<i>Easy* Ripping</i>	<i>Moderately** Difficult Ripping</i>	<i>Oversized Material (>6 inches)</i>
Artificial Fill (Afu)	X	X	X
Topsoil	X		
Alluvium (Qal)	X		X
Alluvial Fan Deposits (Qf)	X	X	
Bedrock: Bonzal Tonalite (Qdi)		X	X

To better determine if rip-ability with conventional equipment is feasible or if alternative excavation methods such as blasting is necessary, we recommend a seismic refraction survey.

7.3 Compressible/Collapsible Soil

The results of our laboratory in-situ moisture and density testing indicate that the existing undocumented artificial fill, topsoil, alluvium and weathered portions of the older alluvial fan deposits and bedrock are susceptible to varying degrees of intolerable settlement and/or hydro-consolidation (collapse) when a load is applied, or the soil is saturated. Consequently, these materials should be collectively overexcavated to underlying competent older alluvial fan deposits or bedrock and replaced as engineered compacted fill.

8.0 SITE EARTHWORK

8.1 General Earthwork and Grading Specifications

Earthwork and grading should be performed in accordance with applicable requirements of the grading code of the County of Riverside and in accordance with the following recommendations prepared by this firm. Grading should also be performed in accordance with the applicable provisions of the attached "Standard Grading Specifications" prepared by LGC (Appendix D), unless specifically revised or amended herein. In case of conflict, the following recommendations shall supersede those included in as part of LGC's General Earthwork and Grading Specifications (Appendix D).

8.2 Geotechnical Observations and Testing

Prior to the start of grading, a meeting should be held on the site with the owner or his representative, developer, grading contractor, civil engineer and geotechnical consultant to discuss the work schedule and geotechnical aspects of the grading. Rough grading, which includes clearing, overexcavation, scarification/processing and fill placement, should be accomplished under the full-time observation and testing of the geotechnical consultant. Fills should not be placed without prior approval from the geotechnical consultant.

A representative of the project geotechnical consultant should also be present onsite on a full-time basis during grading operations to document proper placement and compaction of fills, as well as to document excavations and compliance with the other recommendations presented herein.

8.3 Clearing and Grubbing

Weeds/shrubs, grasses, boulders and trees in areas to be graded should be stripped and hauled offsite. Trees to be removed should be grubbed so that the stumps and major-root systems are removed and the organic materials hauled offsite. During site grading, roots, tree branches and other deleterious materials missed during clearing and grubbing operations should be removed from fill sources prior to placement.

The project geotechnical consultant or his qualified representative should be notified at the appropriate times to provide observation and testing services during clearing and grubbing operations to observe and document compliance with the above recommendations. In addition, buried structures, unusual or adverse soil conditions encountered that are not described or anticipated herein should be brought to the immediate attention of the geotechnical consultant. The existing drainage courses must be cleared of organics, debris, and sediment and widened to accommodate compaction equipment.

8.4 Private Sewage System Abandonment

Private sewage systems and/or other subsurface structures that may be encountered should be located, removed and/or properly abandoned. Abandonment and/or removal of septic systems that may exist should be in accordance with local codes. Seepage pits, if abandoned in-place, should be pumped clean, backfilled with gravel or clean sand jetted into place, and then capped with 2 feet or more of at least a 2-sack slurry for a minimum distance of 2 feet outside the edge of the seepage pit. The top of the slurry cap should be at least 10 feet below proposed grade.

8.5 Water-Well Capping

Unknown water wells that are encountered within the site, which are to be abandoned, should be abandoned and capped under permit by the appropriate governmental agency from Riverside County. In addition, a minimum 10-foot thick compacted fill blanket, below proposed grade, should be placed above the previously or newly-capped water wells.

8.6 Overexcavation and Ground Preparation

The site is underlain by approximately 2 feet to 7 feet and possibly as much as 10 feet of compressible materials. Existing undocumented artificial fill, topsoil, alluvium and weathered portions of the older alluvial fan deposits and bedrock are considered unsuitable for support of proposed fills, structures, and/or improvements, and should be overexcavated to expose underlying competent older alluvial fan deposits or bedrock. Where overexcavation and grading do not provide 5 feet or more of fill below finished pad-grade within areas for proposed structures, retaining walls, or fence walls, the area should be overexcavated to 5 feet or more below proposed grade or 2 feet or more below the bottom of footings for structures or walls, whichever is deeper. Actual depths of overexcavation should be evaluated upon review of final grading and foundation plans as well as during grading on the basis of observations and testing during grading by the project geotechnical consultant.

Prior to placing engineered fill, the exposed bottom surfaces in each overexcavated area should first be scarified to a depth of approximately 6 inches, watered or air-dried as necessary to achieve a uniform water content near optimum or slightly higher, and then compacted in place to a relative compaction of 90 percent or more (based on American Standard of Testing and Materials [ASTM] Test Method D1557).

The estimated locations, extent, and approximate depths for overexcavation of unsuitable materials are indicated on the enclosed Geotechnical Map (Plate 1). The geotechnical consultant should be provided with appropriate survey staking during grading to document that depths and/or locations of recommended overexcavation are adequate.

Sidewalls for overexcavations greater than 4 feet in height should not be steeper than 1:1 horizontal to vertical (h:v) and should be periodically slope-boarded during excavation to remove loose surficial debris and facilitate geologic mapping. Flatter excavations may be necessary for stability.

The grading contractor will need to consider appropriate measures necessary to excavate existing improvements adjacent to the site without endangering those because of caving or sloughing.

8.7 Subdrains

Following overexcavation of the topsoil, alluvium and weathered portions of the older alluvial fan deposits or bedrock, in the existing drainage course of the site a subdrain should be installed where the ultimate depth of fill below proposed grade exceeds approximately 10 feet. Tentative locations of the recommended subdrains should be evaluated once actual grading plans are developed. Actual locations should also be determined by the geotechnical consultant once conditions are exposed during grading. The subdrains will help mitigate potential buildup of hydrostatic pressures below compacted fill due to infiltration of sub-surface and surface waters.

8.8 Fill Suitability

Soil materials excavated during on-site grading are generally considered suitable for use as compacted fill provided that such soil does not contain significant amounts of trash, vegetation, organic material, construction debris, and oversize material.

8.9 Oversized Material

Oversized material that may be encountered during grading, greater than 6 inches, should be reduced in size or removed from the site

8.10 Cut/Fill Transitions and Differential Fill Thicknesses

To mitigate distress to structures and walls related to the detrimental effect of differential settlement, the cut portions should be eliminated from cut/fill transition areas in order that the entire structure or wall be founded on a approved uniform material. This should be accomplished by overexcavating the "cut" portions and shallow fill portions 5 feet or more below proposed pad grade or 2 feet below proposed

footings for structures or walls, whichever is deeper and replacing the excavated materials as properly compacted fill. Recommended depths of overexcavation are provided in the following table:

<i>DEPTH OF FILL ("fill" portion)</i>	<i>DEPTH OF OVEREXCAVATION ("cut" portion)</i>
Up to 15 feet	5 feet (minimum)
Greater than 15 feet	One-third the maximum thickness of fill placed on the "fill" portion (12 feet maximum)

8.11 Benching

Where compacted fills are to be placed on natural slope surfaces inclining at 5:1 (h:v) or greater, the ground should be excavated to create a series of level benches, which have at least a minimum height of 4 feet, excavated into competent bedrock or existing compacted engineered materials. Typical benching details are described in the attached LGC "Standard Grading Specifications" (Appendix D).

8.12 Fill Placement

Fills should be placed in lifts not greater than 6 inches in uncompacted thickness, watered or air-dried as necessary to achieve a uniform water content of at least optimum moisture content, and then compacted in place to relative compaction of 90 percent or more. Fills should be maintained in a relatively level condition. The laboratory maximum dry density and optimum moisture content for each change in soil type should be determined in accordance with ASTM Test Method D1557.

8.13 Inclement Weather

Inclement weather may cause rapid erosion during mass grading and/or construction. Proper erosion and drainage control measures should be in-place during periods of inclement weather in accordance with Riverside County and California State requirements.

9.0 SLOPE CONSTRUCTION

9.1 Slope Stability

Cut slopes and fill slopes at the proposed heights at slope ratios of approximately 2:1 (H:V) or flatter and should be grossly and surficially stable.

9.2 Fill Slopes

Following overexcavation of unsuitable materials, fill slopes and fill over cut slopes should be initiated on a minimum 15 feet wide key excavated into competent older alluvial fan deposits or bedrock if the ground gradient is steeper than 5:1 (H:V) as approved by LGC. The bottom of the fill keys should be tilted at 2 percent back into the slope.

9.3 Cut Slopes

Proposed cut slopes may expose low-density, dry and/or cohesionless soil or bedrock with out-of-slope planner features, which will likely require stabilization by overexcavation and replacement with compacted fill.

9.4 Temporary Excavations

Temporary excavations varying up to a height of approximately 2 feet to 10 feet below existing grades will be necessary to accommodate the recommended overexcavation of the unsuitable soil. Based on the physical properties of the onsite soil, temporary excavations exceeding 4 feet in height should be cut back at a ratio of 1:1 (h:v) or flatter, for the duration of the overexcavation and recompaction of unsuitable soil material. Temporary slopes excavated at the above slope configurations are expected to remain stable during grading operations. However, temporary excavations should be observed by a representative of the project geotechnical consultant for any evidence of potential instability. Depending on the results of these observations, revised slope configurations may be necessary.

Other factors which should be considered with respect to the stability of the temporary slopes include construction traffic and storage of materials on or near the tops of the slopes, construction scheduling, presence of nearby walls or structures on adjacent properties, and weather conditions at the time of construction. Applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act of 1970, and the Construction Safety Act should also be followed.

10.0 POST-GRADING CONSIDERATIONS

10.1 Control of Surface Water and Drainage Control

Positive-drainage devices such as sloping sidewalks, graded-swales, and/or area drains, should be provided to collect and direct water away from the structure and slopes. Neither rain nor excess irrigation water should be allowed to collect or pond against building foundations. Drainage should be directed to adjacent driveways, adjacent streets or storm-drain facilities and maintained at all times. The site is in a semi-arid climate area, from a geotechnical standpoint, thus the ground surface adjacent to the structures should be sloped at a gradient of at least 2 percent for a distance of at least 10 feet. Each graded lot should be further maintained by a swale or drainage path at a gradient of at least 1 percent. Where necessary, drainage paths may be shortened by use of area drains and collector pipes. Planters with open bottoms adjacent to buildings should be avoided. Over watering must be avoided.

10.2 Utility Trenches

Utility-trench backfill within roadways, utility easements, under walls, sidewalks, driveways, floor slabs and any other structures or improvements should be mechanically compacted. The onsite soil should generally be suitable as trench backfill provided those are screened of rocks and other material over 3 inches in diameter and organic matter. Trench backfill should be compacted in uniform lifts (generally not exceeding 6 inches to 8 inches in uncompacted thickness) by mechanical means to at least 90 percent relative density (per ASTM Test Method D1557). Density testing, along with probing, should be performed by the project geotechnical consultant or his representative, to document proper compaction.

If trenches are shallow, the use of conventional equipment may result in damage to the utilities. Clean sand, having a sand equivalent (SE) of 30 or greater should be used to bed and shade the utilities. Sand backfill should be densified. The densification may be accomplished by jetting or flooding and then tamping to ensure adequate compaction. A representative from LGC should observe, probe, and test the backfill to verify compliance with the project specifications.

Utility-trench sidewalls deeper than 4 feet should be laid back at a ratio of 1:1 (h:v) or flatter or braced. A trench box may be used in lieu of shoring. If shoring is anticipated, LGC should be contacted to provide design parameters.

To avoid point-loads and subsequent distress to clay, cement or plastic pipe, imported sand bedding should be placed 1-foot or more above pipe in areas where excavated trench materials contain significant cobbles. Sand-bedding materials should be compacted and tested prior to placement of backfill.

Where utility trenches are proposed parallel to building footings (interior and/or exterior trenches), the bottom of the trench should not be located within a 1:1 (h:v) plane projected downward from the outside bottom edge of the adjacent footing.

11.0 PRELIMINARY FOUNDATION DESIGN RECOMMENDATIONS

11.1 General

Provided that site grading is performed in accordance with the recommendations of this report, conventional shallow foundations are considered feasible for support of the proposed residential structures. Tentative foundation recommendations are provided herein. However, these recommendations may require modification depending on existing as-graded conditions within the building sites upon completion of grading.

11.2 Allowable-Bearing Values

An allowable-bearing value of 2,500 pounds per square foot (psf) may be used for 12-inch wide or greater continuous footings or 24-inch square pad footings, founded completely within in competent compacted fill at a depth of 12-inches or more below the lowest adjacent compacted pad grade. This value may be increased by 20 percent for each additional foot of width and depth, to a value not greater than 3,500 psf. The recommended allowable-bearing value includes both dead and live loads. The bearing capacities should be re-evaluated when loads and footing sizes have been finalized.

11.3 Settlement

Based on the general settlement characteristics of compacted fill, the previous overexcavation recommendations in this report and anticipated loading, it is estimated the site would be subjected to a total settlement about 0.50-inch, and a differential settlement of about 0.25-inch over a distance of about 30 feet. It is anticipated that the majority of the settlement will occur during construction or shortly thereafter as building loads are applied.

The above settlement estimates are based on the assumption that a actual rough grading plan will be submitted to LGC for review, that additional soil tests may be deemed necessary, that revised settlement prediction may result and that grading will be performed in accordance with the final grading recommendations presented in a supplemental report and that the project geotechnical consultant will observe and/or test the soil conditions in the footing trenches.

11.4 Lateral Resistance

Lateral forces on footings should be resisted by passive earth resistance and friction at the bottom of the footing. Foundations should be designed for a passive earth pressure of 330 psf per foot of depth to a maximum value of 3,300 psf and a coefficient of friction of 0.40. The passive earth pressure incorporates a minimum factor of safety of 1.5. The above values may be increased by 1/3 when designing for short-duration wind or seismic forces.

The above values are based on footings placed directly against compacted fill. In the case where footing sides are formed, backfill placed against the footings should be compacted to 90 percent or more of maximum dry density as determined by ASTM D1557.

11.5 Footing Setbacks from Descending Slopes

Where structures are proposed near the tops of descending graded or natural slopes, the footing setbacks from the slope face should conform to the 2016 CBC, Figure 1808.7.1. The required setback is H/3 (one-third the slope height) measured along a horizontal line projected from the lower outside face of the footing to the slope face. The footing setbacks should be 5 feet or more where the slope height is 15 feet or less and vary up to 40 feet where the slope height exceeds 15 feet.

11.6 Building Clearances from Ascending Slopes

Building setbacks from ascending graded or natural slopes should conform with the 2016 CBC, Figure 1808.7.1, which requires a building clearance of H/2 (one-half the slope height) varying from 5 to 15 feet. The building clearance is measured along a horizontal line projected from the toe of the slope to the face of the building. A retaining wall may be constructed at the base of the slope to achieve the required building clearance.

11.7 Footing Observations

Footing trenches should be observed by the project geotechnical consultant to document that they have been excavated into competent bearing compacted fill soil. The foundation trenches should be observed prior to the placement of forms, reinforcement or concrete. The trenches should be trimmed neat, level and square. Loose, sloughed or moisture-softened soil should be removed prior to concrete placement.

Excavated materials from footing excavations should not be placed in slab-on-ground areas unless the soil are compacted to 90 percent or more of maximum dry density as determined by ASTM D1557.

11.8 Expansive Soil Considerations

Results of preliminary laboratory tests by LGC indicate onsite soil materials exhibit expansion potentials of **VERY LOW** in accordance with 2016 CBC, Chapter 18. Given that generally the expansion index of the onsite soil is **VERY LOW**, recommendations to mitigate the effects of expansive soil may not be required. However, expansive soil conditions of the near surface finish grade soil should be evaluated and tested for individual building pads on a pad-by-pad basis during and at the completion of rough grading to verify and/or modify the anticipated conditions. The design and construction details presented herein are intended to provide recommendations for the levels of expansion potential which may be evident at the completion of rough grading. Furthermore, it should be noted that additional slab thickness, footing sizes and/or reinforcement more stringent than the recommendations that follow should be provided as recommended by the project structural engineer.

11.9 Footing/Floor Slabs - Very Low Expansion Potential

The following are our recommendations where foundation soil exhibit **VERY LOW** expansion potential as classified in accordance with 2016 CBC. For this condition, it is recommended that footings and floors be constructed and reinforced in accordance with the following criteria. However, additional slab thickness, footing sizes and/or reinforcement may be required by the project architect or structural engineer.

- ***Footings***

- Exterior continuous footings should be founded entirely in compacted engineered fill below the lowest adjacent final exterior pad grade at minimum depths of 12 inches and 18 inches deep for one-story and for two-story construction, respectively. Interior continuous footings may be founded at a depth of 12 inches or greater for one-story and two-story structures. Continuous footings should have a minimum width of 12 inches for one-story and 15 inches for two-story structures.

- Continuous footings should be reinforced with a minimum of two (2) No. 4 bars, one near the top and one near the bottom.
 - Interior isolated pad footings should be 24 inches or more square and founded at a depth of 12 inches or more for one-story and two-story structures and 18-inches or more for three-story and four-story structures, below the lowest adjacent grade. Footings should be reinforced in accordance with the structural engineer's recommendation.
 - Exterior pad footings should be 24 inches or more square and founded at a depth of 18 inches or more below the lowest adjacent grade. Isolated exterior footings should be connected with grade beams. Footings should be reinforced in accordance with the structural engineer's recommendations.
- **Floor Slabs**
 - Concrete floor slabs should be 4 inches or more thick and reinforced with No. 3 bars spaced 24 inches or less on-centers, both ways. Slab reinforcement should be supported on concrete chairs or bricks so that the desired placement is near mid-depth.
 - Concrete floors should be underlain with a moisture-vapor retarder consisting of 15-mil thick vapor barrier. Laps within the membrane should be sealed and overlapped 12 inches. Two inches or more of clean sand should be placed above and below the membrane to promote uniform curing of the concrete.
 - Prior to placing concrete, subgrade soil should be thoroughly moistened to approximately 100% of optimum water content to promote uniform curing of the concrete and reduce the development of shrinkage cracks. The moisture content should penetrate to a minimum depth of 12 inches.

12.0 RETAINING WALLS

12.1 Lateral Earth Pressures and Retaining Wall Design Parameters

Conventional footings for retaining walls founded entirely in properly compacted fill should be embedded at least 18 inches below lowest adjacent grade. At this depth, an allowable uniform bearing capacity of 2,500 psf may be assumed for retaining walls founded in competent compacted fill.

The following are lateral earth pressures are recommended for retaining walls up to 10 feet high that may be proposed. The recommended lateral pressures for approved on-site or import soil (**with an expansion index of 20 or less and an angle of internal friction (phi) of at least 36 degrees**) for level or sloping backfill are presented in Table 5. Onsite soil should be screened of rocks and other material over 3 inches in diameter.

TABLE 5
Lateral Earth Pressures

CONDITIONS	EQUIVALENT FLUID WEIGHT (pcf)			
	Level Backfill (up to 6 feet)	Level Backfill Dynamic (>6 feet to 10 feet)	2:1 Backfill Ascending (up to 6 feet)	2:1 Backfill Ascending-Dynamic (>6 feet to 10 feet)
Active	35	55	50	70
At-Rest	55	75	80	100
Passive	330	330	190	190

The friction coefficient of 0.40 may be used at the concrete footing and soil interface for sliding resistance. Wall footings should be designed in accordance with structural considerations.

Embedded structural walls should be designed to resist the lateral earth pressures. Restrained structural walls should be designed for at rest conditions. The magnitude of those pressures depends on the amount of deformation that the wall can yield under load. If the wall can yield enough to mobilize the full shear strength of the soil, it can be designed for "active" pressure. If the wall cannot yield under the applied load, the shear strength of the retained soil cannot be mobilized and the earth pressure will be higher. Such walls should be designed for "at-rest" conditions. If a structure moves toward the soil, the resulting resistance developed by the soil is the "passive" resistance.

The equivalent fluid pressure values assume free-draining conditions and a soil expansion index of 20 or less. If conditions other than those assumed above are anticipated, revised equivalent fluid pressure values should be provided on an individual-case basis by the geotechnical engineer.

Surcharge loading effects from the adjacent structures should be evaluated by the geotechnical and structural engineers.

12.2 *Footing Embedments*

The base of retaining wall footings constructed on level ground should be founded at a depth of 18 inches or more below the lowest adjacent final grade. Where retaining walls are proposed on or within 15 feet from the top of an adjacent descending fill slopes, the footings should be deepened such that a horizontal clearance of $H/3$ or more (one-third the slope height) is maintained between the outside bottom edges of the footings and the face of the slope but not to exceed 15 feet nor be less than 5 feet. The above recommended footing setbacks are preliminary and may be revised based on site specific soil conditions. Footing or pier excavations should be observed by the project geotechnical representative to document that the footing trenches have been excavated into competent bearing soil and to the embedments recommended above. These observations should be performed prior to placing forms or reinforcing steel.

12.3 *Drainage*

All retaining wall structures should be provided with appropriate wall drainage and appropriately waterproofed. Outlet pipes should be sloped to drain to a suitable outlet. It should be noted that that recommended wall drains does not provide protection against seepage through the face of the wall and/or efflorescence. If such seepage or efflorescence is undesirable, retaining walls should be waterproofed to reduce this potential.

Weep holes or open vertical masonry joints should be provided in retaining walls 3 feet or less in height to reduce the likelihood of entrapment of water in the backfill. Weep holes, if used, should be 3 inches or more in diameter and provided at intervals of 6 feet or less along the wall. Open vertical masonry joints, if used, should be provided at 32-inch or less intervals. A continuous gravel fill, 12 inches by 12 inches, should be placed behind the weep holes or open masonry joints. The gravel should be wrapped in filter fabric to reduce infiltration of fines and subsequent clogging of the gravel. Filter fabric may consist of Mirafi 140N or equivalent.

In lieu of weep holes or open joints, for retaining walls less than 3 feet, a perforated pipe and gravel subdrain may be used. Perforated pipe should consist of 4-inch or more diameter PVC Schedule 40 or ABS SDR-35, with the perforations laid down. The pipe should be embedded in 1.5 cubic feet per foot of 0.75 or 1.5-inch open graded gravel wrapped in Mirafi 140N filter fabric.

Retaining walls greater than 3 feet high should be provided with a continuous backdrain for the mean full height of the wall. This drain could consist of geosynthetic drainage composite, such as Miradrain 6000 or equivalent, or a permeable drain material, placed against the entire backside of the wall. If a permeable drain material is used, the backdrain should be 1 or more feet thick. Caltrans Class II permeable material or open graded gravel or crushed stone may be used as permeable drain material. If gravel or crushed stone is used, it should have less than 5 percent material passing the No. 200 sieve. The drain should be

separated from the backfill with a geofabric. The upper 1-foot of the backdrain should be covered with compacted fill. A drainage pipe consisting of 4-inch diameter perforated pipe (described above) surrounded by 1 cubic foot per foot of gravel or crushed rock wrapped in a filter fabric should be provided along the back of the wall. The pipe should be placed with perforations down, sloped at 2 percent or more to discharge towards an appropriate outlet through a solid pipe. The pipe should outlet away from structures and slopes. The outside portions of retaining walls supporting backfill should be coated with an approved waterproofing compound to inhibit infiltration of moisture through the walls.

12.4 Temporary Excavations

Retaining walls should be constructed and backfilled as soon as possible after backcuts are excavated. Prolonged exposure of backcut slopes may result in localized slope instability. To facilitate retaining wall construction, the lower 4 feet of temporary slopes may be cut vertical and the upper portions exceeding a height of 4 feet should be cut back at a gradient of 1:1 (h:v) or flatter for the duration of construction. Temporary slopes should be observed by the project geotechnical consultant for evidence of potential instability. Depending on the results of these observations, flatter slopes may be necessary. The potential effects of various parameters such as weather, heavy equipment travel, storage near the tops of the temporary excavations and construction scheduling should also be considered in the stability of temporary slopes. Water should not be permitted to drain towards the slope. Surcharges from equipment, spoil piles, etc., should not be allowed within 10 feet of the top of the slope.

All excavations should be made in accordance with Cal/OSHA. Excavation safety is the sole responsibility of the contractor.

12.5 Retaining Wall Backfill

The retaining wall backfill soil (with an expansion index of 20 or less and an angle of internal friction of at least 36 degree) should be placed in 6 to 8 inch loose lifts, moisture-conditioned or air-dried as necessary to achieve near optimum water conditions, and compacted to at least 90 percent relative density (based on ASTM Test Methods D2922 and D3017).

13.0 MASONRY GARDEN WALLS

13.1 Construction on Level Ground

Where masonry screen walls or garden walls are proposed on level ground and 5 feet or more from the tops of descending slopes, the footings for these walls may be founded at a depth of 18 inches or more below the lowest adjacent final grade. These footings should also be reinforced with two No. 4 bars, one top and one bottom and in accordance with the structural engineer's recommendations.

13.2 Construction Joints

In order to mitigate the potential for unsightly cracking related to the effects of differential settlement, positive separations (construction joints) should be provided in the walls at horizontal intervals of approximately 25 feet and at each corner. The separations should be provided in the blocks only and not extend through the footings. The footings should be placed monolithically with continuous rebar to serve as effective "grade beams" along the full lengths of the walls.

14.0 CONCRETE FLATWORK

14.1 Nonstructural Concrete Flatwork

Concrete flatwork (such as walkways, driveways, patios, bicycle trails, etc.) has a high potential for cracking because of changes in soil volume related to soil-moisture fluctuations. To reduce the potential for excessive cracking and lifting, concrete should be designed in accordance with the minimum guidelines outlined in Table 6. These guidelines will reduce the potential for irregular cracking and promote cracking along construction joints, but will not eliminate all cracking or lifting. Thickening the concrete and/or adding additional reinforcement will further reduce cosmetic distress.

TABLE 6
Minimum Recommendations for Nonstructural Concrete Flatwork Over Very Low Expansive Soil

	<i>Private Sidewalks</i>	<i>Private Drives</i>	<i>Patios/ Entryways</i>	<i>City Sidewalk Curb and Gutters</i>
Minimum Thickness (in.)	4 (nominal)	4(full)	4 (full)	City/Agency Standard
Presaturation	Presoak to 12 inches	Presoak to 12 inches	Presoak to 12 inches	City/Agency Standard
Reinforcement	—	No. 3 at 24 inches on centers	No. 3 at 24 inches on centers	City/Agency Standard
Thickened Edge	—	8" x 8"	8" X 8"	City/Agency Standard
Crack Control	Saw cut or deep open tool joint to a minimum of 1/3 the concrete thickness	Saw cut or deep open tool joint to a minimum of 1/3 the concrete thickness	Saw cut or deep open tool joint to a minimum of 1/3 the concrete thickness	City/Agency Standard
Maximum Joint Spacing	5 feet	10 feet or quarter cut whichever is closer	6 feet	City/Agency Standard

14.2 Joint Spacing

To reduce the potential for unsightly cracking, concrete sidewalks and patio type slabs should be provided with construction or expansion joints every 6 feet or less. Concrete driveway slabs should be provided with construction or expansion joints every 10 feet or less, with an aspect ratio of 1.2, to provide rectangular shaped joint patterns.

14.3 Subgrade Preparation

As a further measure to reduce cracking of concrete flatwork, the upper 12 inches of subgrade soil below concrete-flatwork areas should first be compacted to a relative density of 90 percent or more and then thoroughly wetted to achieve a moisture content that is equal to or slightly greater than optimum moisture content. This moisture should extend to a depth of 12 inches or more below subgrade and maintained in the soil during placement of concrete. Pre-watering of the subgrade will promote uniform curing of the concrete and reduce the potential for the development of shrinkage cracks. A representative of the project geotechnical consultant should observe and document the density and moisture content of subgrade soil and depth of moisture penetration prior to placing concrete.

15.0 PLANTERS

Area drains should be extended into planters that are located within 5 feet of building walls, foundations, retaining walls and masonry garden walls to reduce excessive infiltration of water into the underlying foundation soil. The surface of the ground in these areas should be sloped at a gradient of 2 percent or more away from the walls and foundations. Drip-irrigation systems are also recommended to reduce overwatering and subsequent saturation of the adjacent foundation soil.

16.0 SOIL CORROSIVITY

16.1 Corrosivity to Concrete and Metal

The National Association of Corrosion Engineers (NACE) defines corrosion as "a deterioration of a substance or its properties because of a reaction with its environment". From a geotechnical viewpoint, the "environment" is the prevailing foundation soil and the "substances" are the reinforced concrete foundations or various buried metallic elements such as rebar, piles, pipes, etc., which are in direct contact with or within close vicinity of the foundation soil.

In general, soil environments that are detrimental to concrete have high concentrations of soluble sulfates. ACI 318R-05, Table 4.3.1 provides specific guidelines for the concrete mix design based on different amount of soluble sulfate content. The minimum amount of chloride ions in the soil environment that are corrosive to steel, either in the form of reinforcement protected by concrete cover, or plain steel substructures such as steel pipes or piles, is 500 ppm per California Test 532 and ACI 318R-05, Table 4.4.1.

The corrosion potential of the onsite materials was evaluated for its effect on steel and concrete. The corrosion potential was evaluated using the results of laboratory tests on representative samples obtained during our field exploration. Laboratory testing was performed to evaluate pH, minimum electrical resistivity and chloride and soluble sulfate content. Based on testing performed during this investigation within the project site, the onsite soil are classified as having a negligible sulfate exposure condition in accordance with ACI 318R-05, Table 4.3.1, and negligible chloride exposure condition in accordance with ACI 318R-05, Table 4.4.1. Based on laboratory testing of on-site soil it is also our opinion that onsite soil should be considered highly corrosive to buried metals due to the low resistivity. Metal piping should be corrosion-protected or consideration should be given to using plastic piping instead of metal or plastic sleeving around the metal pipe.

Despite the minimum recommendation above, LGC is not a corrosion-engineering firm. Therefore, we recommend that you consult with a competent corrosion engineer and conduct additional testing (if required) to evaluate the actual corrosion potential of the site and to provide recommendations to reduce the corrosion potential with respect to the proposed improvements. The recommendations of the corrosion engineer may supersede the above requirements.

These recommendations are based on the current and previous samples of the subsurface soil or bedrock. The initiation of grading at the site could blend various soil types and import soil may be used locally. These changes made to the foundation soil could alter sulfate-content levels. Accordingly, it is recommended that additional testing be performed at the completion of grading.

17.0 PLAN REVIEWS AND CONSTRUCTION SERVICES

This report is a preliminary geotechnical investigation prepared for the exclusive use of **Mr. Shizao Zheng** to assist the project engineer and architect in the design of the proposed development. It is recommended that LGC be engaged to review the actual grading plans, foundation plans and final design drawings and specifications prior to construction. This is to document that the recommendations contained in this report have

been properly interpreted and/or are incorporated into the project specifications. LGC's review of such plans and those that might result from the recommended reviews may indicate that additional subsurface exploration, laboratory testing and analysis should be performed to address areas of concern. If LGC is not accorded the opportunity to review those documents, LGC cannot take responsibility for misinterpretation of our recommendations.

We recommend that LGC be retained to provide geotechnical engineering services during both the rough grading and construction phases of the work. This is to document compliance with the design, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

If the project plans change significantly (e.g., building loads or type of structures or grading), LGC should be retained to review our original design recommendations and applicability to the revised construction. If conditions are encountered during construction that appear to be different than those indicated in this report, this office should be notified immediately. Design and construction revisions may be required.

18.0 LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by engineers and geologists practicing in this or similar localities. The professional opinions contained herein were derived in accordance with current standards of practice for preliminary reports. Other warranties, expressed or implied, are not made or implied as to the conclusions and professional advice included in this report. The soil samples taken and submitted for laboratory testing, the observations made and the in-situ field testing performed are believed representative of the entire project; however, soil and geologic conditions can vary in characteristics between excavations, both laterally and vertically and may be different than our preliminary findings. If this occurs, the changed conditions must be evaluated by the project geotechnical engineer and engineering geologist and design adjustments may be required recommended.

This report is issued with the understanding that it is the responsibility of the owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of the project engineers and incorporated into the plans, and that necessary steps are taken to assure that the contractor and/or subcontractor properly implements the recommendations in the field during construction. The contractor and/or subcontractor should notify the owner if they consider any of the recommendations presented herein to be unsafe.

The conclusions and opinions contained in this report are based on the results of our scope of work and represent our professional judgment. The findings, conclusions and recommendations presented in this report are to be considered preliminary only and subject to confirmation by LGC during the construction process. Without this confirmation, this report is to be considered incomplete; and LGC will not assume any responsibility for its use.

The conclusions and opinions contained in this report are valid up to a period of 2 years from the date of this report. Changes in the conditions of a property can and do occur with the passage of time, whether those be because of natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate codes or standards may occur, whether those result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside LGC's control. Therefore, pending such changes made or if the scope of this project changes, an update of this report should be completed.

This report was not prepared for use by parties or projects other than those named or designed above and is otherwise considered insufficient for other parties or other purposes.

APPENDIX A

REFERENCES AND AERIAL PHOTOGRAPHS



APPENDIX A

References Reviewed

- Blake, T.F., 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada, Prepared by California Division of Mines and Geology.
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- Sikand Engineering, Preliminary Grading Plan Tract No. 37557, Scale 1" = 80', Sheet 2 of 2. Dated June 13, 2018.
- Soil Exploration Company, Inc., Rockfall Potential, Tentative Tract Map 33626, Amended Map No. 1 City of Moreno Valley, California plot dated 2/19/2007.
- Southern California Earthquake Center, University of Southern California, Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines For Analyzing and Mitigating Liquefaction Hazards in California, March 1999.



Aerial Photographs Reviewed

SOURCE	FLIGHT DATE
Google Earth Pro.	2/2018
Google Earth Pro.	3/2017
Google Earth Pro.	10/2016
Google Earth Pro.	2/2016
Google Earth Pro.	4/2014
Google Earth Pro.	11/2013
Google Earth Pro.	11/2012
Google Earth Pro.	6/2012
Google Earth Pro.	3/2011
Google Earth Pro.	11/2009
Google Earth Pro.	6/2009
Google Earth Pro.	6/2008
Google Earth Pro.	12/2006
Google Earth Pro.	8/2006
Google Earth Pro.	1/2006
Google Earth Pro.	12/2005
Google Earth Pro.	10/2005
Google Earth Pro.	12/2004
Google Earth Pro.	1/2004
Google Earth Pro.	12/2003
Google Earth Pro.	11/2003
Google Earth Pro.	12/2002
Google Earth Pro.	6/2002
Google Earth Pro.	6/1994

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

APPENDIX B
EXPLORATORY TRENCH LOGS





Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH IT-1				
Project Number: G18-1648-10		Elevation: 1594'		Engineering Properties				
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)	
Depth	Date: 9/4/18	Description:						Geologic Unit
0.0'-2.0'	A	<u>ARTIFICIAL FILL, UNDOCUMENTED:</u> Silty SAND/Clayey SILT; dark reddish brown to blackish brown, dry to damp, medium dense/firm, very fine to medium grained with some coarse to very coarse grains, coarse to very coarse rock fragments, some pores, root hairs, desiccated, oxidation staining		Afu	SM/ML	Bulk @ 0'-2.0' Nuke @ 1.0'	4.3	107.5
2.0'-5.0'	B	<u>OLDER ALLUVIAL FAN DEPOSITS:</u> Silty SAND; greenish gray and reddish brown, dry, very dense, very fine to medium grained, with some coarse grains, pinhole pores, root hairs, stopped digging at 5.0 feet due to practical refusal		Qoa	SM			
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'	SURFACE SLOPE: LEVEL		TREND: N19E		
								
						TOTAL DEPTH= 5.0 FEET NO GROUNDWATER ENCOUNTERED		
								

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY			Logged by: AJR		LOG OF TRENCH IT-2			
Project Number: G18-1648-10			Elevation: 1592'		Engineering Properties			
Equipment: BACKHOE			Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit					
0.0'-5.5'	A	<u>ARTIFICIAL FILL, UNDOCUMENTED:</u> Silty SAND/Clayey SILT; dark reddish brown to blackish brown, dry to damp, medium dense, very fine to medium grained with some coarse to very coarse grains, coarse to very coarse rock fragments, some pores, root hairs, desiccated, pieces of concrete	Afu	SM/ML				
5.5'-6.5'	B	<u>OLDER ALLUVIAL FAN DEPOSITS:</u> Silty SAND; greenish gray and reddish brown, dry, very dense, very fine to medium grained, with some coarse grains, pinhole pores, root hairs, oxidation staining	Qoa	SM				
6.5'-10.5'	C	<u>BEDROCK (TONALITE):</u> Quartz diorite, grayish white, dry, hard to very hard, oxidation staining @10.0'; some moderately weathered sections at one bottom of trench	Kqdl					
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'		SURFACE SLOPE: LEVEL		TREND: N65E	
					<p>TOTAL DEPTH=10.5 FEET NO GROUNDWATER ENCOUNTERED</p>			



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY			Logged by: AJR			LOG OF TRENCH TR-1			
Project Number: G18-1648-10			Elevation: 1638'			Engineering Properties			
Equipment: BACKHOE			Location/Grid: SEE PLATE 1			USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit						
0.0'-2.0'	A	<u>Alluvium:</u> Silty SAND; light reddish brown to gray brown, dry, loose, very fine to medium grained with some coarse grains, desiccated, root hairs and roots, pinhole pores and pores	Qal	SM					
2.0'-4.5'	B	<u>BEDROCK (TONALITE):</u> Quartz Diorite, grayish white to blackish orange, dry to damp, moderately hard to hard, fine to very coarse grained, oxidation staining, moderately to very weathered, friable @3.0' moderately weathered	Kqd						
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'			SURFACE SLOPE: LEVEL		TREND: N30E	
									
								TOTAL DEPTH= 4.5 FEET NO GROUNDWATER ENCOUNTERED	
									



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-2			
Project Number: G18-1648-10		Elevation: 1640'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit				
0.0'-7.0'	A	<u>ALLUVIUM:</u> Silty SAND; dark reddish brown, dry to damp, loose to medium dense, very fine to medium grained with some coarse grains, occasional coarse rock fragments, pores, root hairs @2.0'; medium dense, desiccated	Qal	SM	Bulk @ 5.0'-7.0'		
7.0'-8.0'	B	<u>BEDROCK (TONALITE):</u> Quartz Diorite, yellowish gray to blackish orange, dry to damp, hard, fine to very coarse grained, oxidation staining, manganese staining, slightly to moderately weathered, friable	Kqd				
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'	SURFACE SLOPE: LEVEL		TREND: N28W	
				TOTAL DEPTH= 8.0 FEET NO GROUNDWATER ENCOUNTERED			

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY			Logged by: AJR		LOG OF TRENCH TR-3			
Project Number: G18-1648-10			Elevation: 1612'		Engineering Properties			
Equipment: BACKHOE			Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit					
0.0'-1.0'	A	TOPSOIL: Silty SAND; light reddish brown to gray brown, dry, loose, very fine to medium grained with some coarse and very coarse grains, desiccated, root hairs and roots, pores	Qoa	SM				
1.0'-2.5'	B	OLDER ALLUVIUM FAN DEPOSITS: Silty SAND; dark reddish brown, dry to damp, medium dense, very fine to coarse grained, clayey matrix, pores, root hairs, weathered		SM				
2.5'-3.0'	C	Silty SAND; olive gray to dark reddish purple, dry to damp, very dense, very fine to coarse grained, with some very coarse grains, caliche stringers and coating, pores and pinhole pores, root hairs @ 3.0', stopped digging practical refusal		SM				
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'	SURFACE SLOPE: LEVEL		TREND: N60E		
								
						TOTAL DEPTH= 3.0 FEET NO GROUNDWATER ENCOUNTERED		
								

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-4			
Project Number: G18-1648-10		Elevation: 1608'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit				
0.0'-0.5'	A	TOPSOIL: Silty SAND; reddish brown, loose, dry, very fine to medium grained with some coarse and very coarse grains, roots and root hairs, pores, desiccated		SM			
0.5'-4.5'	B	BEDROCK (TONALITE): Quartz Diorite, grayish white to blackish orange, dry to damp, moderately hard to hard, fine to very coarse grained, oxidation staining, very weathered, friable @ 2.0', moderately weathered	Kqd		Bulk @ 2.0'-4.5'		
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'	SURFACE SLOPE: LEVEL		TREND: N43E	
							
						TOTAL DEPTH= 3.0 FEET NO GROUNDWATER ENCOUNTERED	
							



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY			Logged by: AJR		LOG OF TRENCH TR-5			
Project Number: G18-1648-10			Elevation: 1690'		Engineering Properties			
Equipment: BACKHOE			Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/6/18	Description:	Geologic Unit					
0.0'-1.5'	A	OLDER ALLUVIUM FAN DEPOSITS Silty SAND; dark reddish purple to dark red brown, dry, loose to medium dense, very fine to medium grained, with occasional coarse grains, pores and pinhole pores, roots and roothairs, oxidation staining, weathered, blocky	Qoa	SM	Bulk @ 0.0'-2.0'			
1.5'-3.0'	B	Silty SAND; reddish orange to light orange brown, dry, dense to very dense, very fine to medium grained with some coarse to very coarse grains, pinhole pores, roothairs, trace manganese staining	Kqd					
3.0'-7.5'	C	BEDROCK (TONALITE): Quartz Diorite; grayish white to blackish orange, dry to damp, moderately hard to hard, fine to very coarse grained, oxidation staining, manganese staining, moderately weathered, friable @6.0'; slightly weathered, hard to very hard, practical refusal at 7.5'						
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'		SURFACE SLOPE: LEVEL		TREND: N12W	
							<p>TOTAL DEPTH = 7.5 FEET NO GROUNDWATER ENCOUNTERED</p>	

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY			Logged by: AJR		LOG OF TRENCH TR-6			
Project Number: G18-1648-10			Elevation: 1672'		Engineering Properties			
Equipment: BACKHOE			Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/6/18	Description:	Geologic Unit					
0.0'-6.0'	A	OLDER ALLUVIUM FAN DEPOSITS: Silty SAND; dark brown to reddish brown, dry to damp, loose to medium dense, very fine to medium grained, with some coarse and very coarse grains, occasional coarse rock fragments, desiccated, pores, roots and root hairs, oxidation staining @3.0'; medium dense, trace rock fragments, caliche stringers and coating	Qoa	SM	Bulk @ 2.0'-6.0' Nuke @ 2.0'	2.6	106.2	
6.0'-12.0'	B	Silty SAND; reddish brown, dry, medium dense to dense, very fine to medium grained, with occasional coarse and very coarse grains, trace rock fragments, desiccated, pores, roots and root hairs, caliche stringers and coating		SM				
12.0'-13.5'	C	BEDROCK (TONALITE): Quartz Diorite, blackish orange to yellow brown, dry to damp, hard, fine to very coarse grains, friable, oxidation staining, moderately weathered	Kqd					
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'		SURFACE SLOPE: LEVEL		TREND: N4E	
					<p>TOTAL DEPTH=13.5 FEET NO GROUNDWATER ENCOUNTERED</p>			

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-7			
Project Number: G18-1648-10		Elevation: 1624'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/6/18	Description:	Geologic Unit				
0.0'-2.0'	A	<u>TOPSOIL:</u> Silty SAND; reddish brown, dry to damp, medium dense, very fine to medium grained, with some coarse and very coarse grains, desiccated, pores, root hairs	Qoa	SM			
2.0'-4.5'	B	<u>WEATHERED BEDROCK (TONALITE):</u> Well Grade GRAVEL; blackish orange to gray white, damp, moderately hard, fine to very coarse grained, highly weathered, oxidation staining, friable @3.0'; dry, very hard, slightly weathered @4.5', stopping digging practical refusal	Qdi	SM			
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'		SURFACE SLOPE: LEVEL		TREND: N13E
							
							TOTAL DEPTH= 4.5 FEET NO GROUNDWATER ENCOUNTERED
							

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-8			
Project Number: G18-1648-10		Elevation: 1612'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/8/18	Description:	Geologic Unit				
0.0'-2.0'	A	<u>TOPSOIL:</u> Silty SAND; light reddish brown to gray brown, dry, loose, very fine to medium grained with some coarse and very coarse grains, desiccated, root hairs and roots, pores	Qoa	SM	Nuke @ 2.5'	5.8	105.7
2.0'-3.0'	B	<u>OLDER ALLUVIUM FAN DEPOSITS:</u> Silty SAND; dark reddish purple to olive gray, dry to damp, dense to very dense, very fine to coarse grained, clayey matrix, pores, root hairs, caliche stringers and coating, weathered		SM			
3.0'-7.0'	C	Silty SAND/Clayey SILT; dark brown to olive brown, damp, dense to very dense, very fine to medium grained with some coarse grains, occasional coarse and very coarse rock fragments, clayey matrix, oxidation staining, difficulty digging		SM/ML	Bulk @ 4.0'-6.0' Nuke @ 7.0'	8.3	117.8
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'	SURFACE SLOPE: LEVEL		TREND: N62E	
				TOTAL DEPTH= 7.0 FEET NO GROUNDWATER ENCOUNTERED			

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

APPENDIX B

Field Exploration

B-1 General

Geologic mapping of the site was performed by LGC's personnel. The locations of the exploratory excavations were chosen to obtain site and trench specific subsurface information needed to achieve the objective for this investigation.

A visual survey was conducted to verify that the proposed excavations would not encounter any subsurface utility lines. Underground utilities were not encountered during the field exploratory program.

B-2 Excavation and Sampling

Surface geologic mapping of the site and accessible surrounding areas was completed by a geologist from this firm during September 2018, utilizing the referenced Conceptual Grading Plan Tract Map No. 37557 for plotting geologic units. This information is plotted on the enclosed Geotechnical Map (Plate 1).

Ten (10) exploratory trenches, TR-1 through TR-8 and IT-1 through IT-2, were excavated with a backhoe on September 4, 2018 and September 6, 2018 to depths of approximately 3.0 to 13.5 feet below the existing ground surface. The trenches were excavated to evaluate the general characteristics of the subsurface geologic/geotechnical conditions at the subject site, which consisted of classification of site soil, determination of groundwater elevations (if present), and collection of representative soil and bedrock samples.

Prior to our subsurface work, an underground utilities clearance was obtained from Underground Service Alert of Southern California. At the conclusion of the subsurface investigation, test pits were backfilled with native materials. Minor settlement of the backfill soil may occur over time.

During our subsurface investigation, representative bulk samples were retained for laboratory testing. Laboratory testing was performed on selected representative samples of onsite soil and/or bedrock materials and included maximum dry density and optimum water content, expansion index, sulfate content, chloride content, pH, resistivity, grain size analysis, and direct shear. A discussion of the tests performed and a summary of the results are presented in Appendix C. Moisture and density test results are presented on the trench logs which are presented on the following pages.

B-3 Miscellaneous

The trench logs describe the earth materials encountered, sampling method used, and the results of field and laboratory tests. The logs also show the test pit number, date of completion, and the name of the logger. A geologist logged the trenches in accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) ASTM D2488-93. The boundaries between soil types shown on the logs are approximate and the transition between different soil layers may be gradual. The logs of the trenches are presented on the following pages.

APPENDIX C

LABORATORY TESTING PROCEDURES AND TEST RESULTS



APPENDIX C

Laboratory Testing Procedures and Test Results

The laboratory testing program was directed towards providing quantitative data relating to the relevant engineering properties of the soil. Samples considered representative of site conditions were tested in general accordance with American Society for Testing and Materials (ASTM) procedure and/or California Test Methods (CTM), where applicable. The following summary is a brief outline of the test type and a table summarizing the test results.

Soil Classification: Soil were classified according the Unified Soil Classification System (USCS) in accordance with ASTM Test Methods D2487 and D2488. The soil classifications (or group symbol) are shown on the laboratory test data, and boring logs.

Maximum Dry Density Tests: The maximum dry density and optimum water content of typical materials were determined in accordance with ASTM test method D1557. The test results are presented in the table below:

SAMPLE LOCATION	SAMPLE DESCRIPTION (USCS)	MAXIMUM DRY DENSITY (% by weight)	OPTIMUM WATER CONTENT (%)
IT-1 @ 0-2'	Silty SAND/Clayey SILT (SM/ML)	135.9	7.0
TR-4 @ 2-4'	Bedrock; Quartz Diorite	133.2	7.0
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	128.3	9.0

Expansion Index: The expansion potential of a selected sample was evaluated by the Expansion Index Test, U.B.C. Standard No. 18-2 and/or ASTM test method D4829. Specimens are molded under a given compactive energy at or near the optimum moisture content and approximately 50 percent saturation or approximately 90 percent relative compaction. The prepared 1-inch thick by 4-inch diameter specimens are loaded to an equivalent 144 psf surcharge and are inundated with tap water until volumetric equilibrium is reached. The results of these tests are presented in the table below:

SAMPLE LOCATION	SAMPLE DESCRIPTION (USCS)	EXPANSION INDEX	EXPANSION POTENTIAL*
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	19	Very Low

*Per ASTM D4829

Soluble Sulfates: The soluble sulfate content of selected samples was determined by standard geotechnical methods (CTM 417). The soluble sulfate content is used to determine the appropriate cement type and maximum water-cement ratios. The test results are presented in the table below:

SAMPLE LOCATION	SAMPLE DESCRIPTION (USCS)	SULFATE CONTENT (ppm)	SULFATE EXPOSURE*
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	Non-Detect	Negligible

*Per ACI 318R-05 Table 4.3.1

Chloride Content: Chloride content was tested with CTM 422. The results are presented below:

SAMPLE LOCATION	SAMPLE DESCRIPTION (USCS)	CHLORIDE CONTENT (ppm)
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	128

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed with CTM 643. The results are presented in the table below:

<i>SAMPLE LOCATION</i>	<i>SAMPLE DESCRIPTION (USCS)</i>	<i>pH</i>	<i>MINIMUM RESISTIVITY (ohm-cm)</i>
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	7.5	1,100

Direct Shear: Direct shear tests were performed on selected remolded samples, which were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box, and reloading the sample, pore pressures set up in the sample due to the transfer were allowed to dissipate for a period of approximately 1 hour prior to application of shearing force. The samples were tested under various normal loads, a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of less than 0.001 to 0.5 inch per minute (depending upon the soil type). The graphical test results are presented in the table below:

<i>SAMPLE LOCATION</i>	<i>SAMPLE DESCRIPTION</i>	<i>ANGLE OF INTERNAL FRICTION (degrees)</i>	<i>COHESION (psf)</i>
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	36	20

APPENDIX D

GENERAL EARTHWORK AND GRADING SPECIFICATIONS



APPENDIX D

General Earthwork and Grading Specifications

1.0 General

1.1 Intent: These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record: Prior to commencement of work, the owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to confirm that the attained level of compaction is being accomplished as specified. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor: The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the project plans and specifications. The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "equipment" of work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading.

The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory

conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified. It is the contractor's sole responsibility to provide proper fill compaction.

2.0 Preparation of Areas to be Filled

- 2.1 Clearing and Grubbing:** Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 10 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed. The contractor is responsible for all hazardous waste relating to his work. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Client should acquire the services of a qualified environmental assessor.

- 2.2 Processing:** Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soil are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.
- 2.3 Overexcavation:** In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.
- 2.4 Benching:** Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.
- 2.5 Evaluation/Acceptance of Fill Areas:** All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

- 3.1 General:** Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soil of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soil to achieve satisfactory fill material.
- 3.2 Oversize:** Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.
- 3.3 Import:** If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

- 4.1 Fill Layers:** Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.
- 4.2 Fill Moisture Conditioning:** Fill soil shall be watered, dried back, blended, and/or mixed, as necessary to attain relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557-91).
- 4.3 Compaction of Fill:** After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557-91). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.
- 4.4 Compaction of Fill Slopes:** In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557-91.
- 4.5 Compaction Testing:** Field tests for moisture content and relative compaction of the fill soil shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).
- 4.6 Frequency of Compaction Testing:** Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soil embankment. In addition, as a

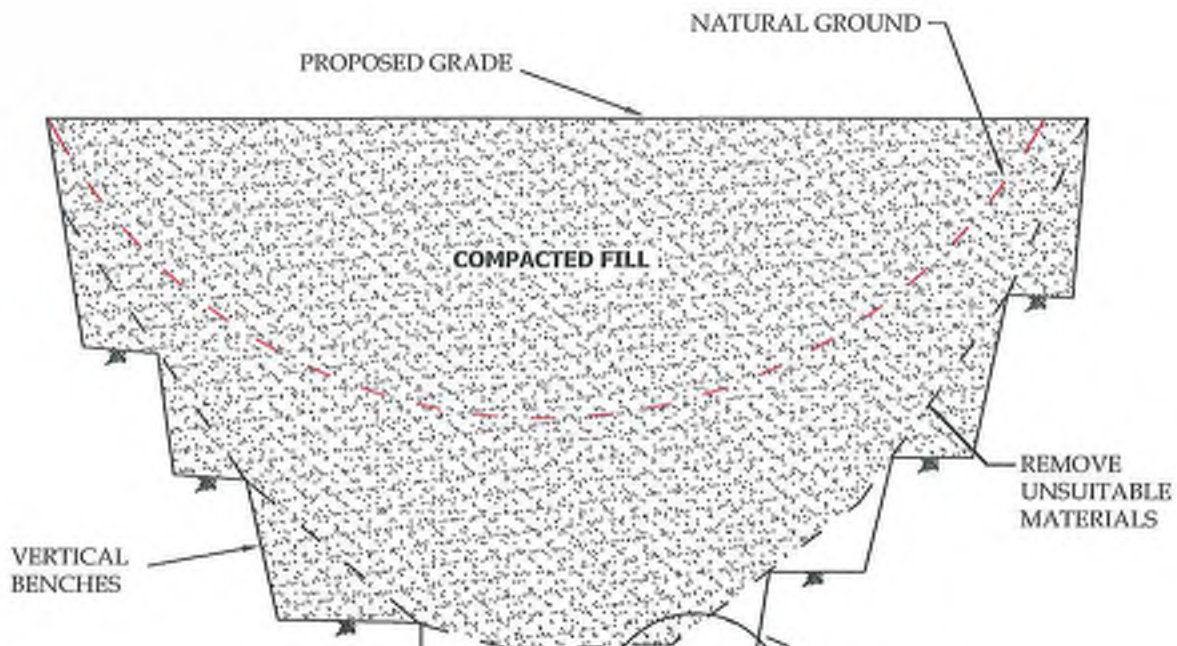
guideline, at least one (1) test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations:

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two (2) grade stakes within a horizontal distance of 100 feet and vertically less than 5 feet apart from potential test locations shall be provided.

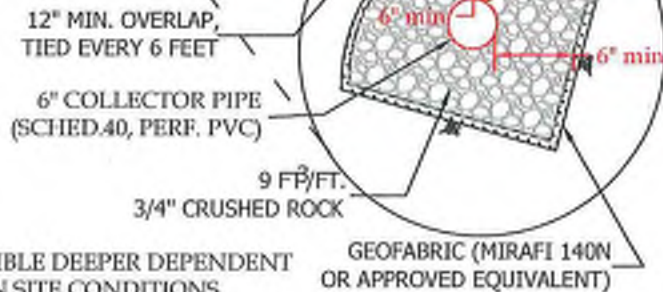
5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s) and grading plan. The Geotechnical Consultant may recommend additional subdrain and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

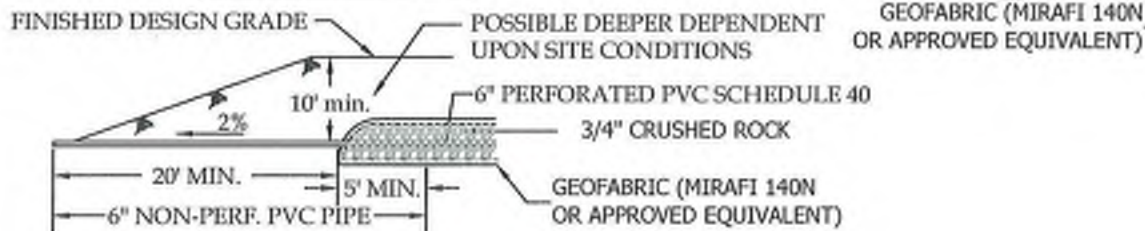


Notes:

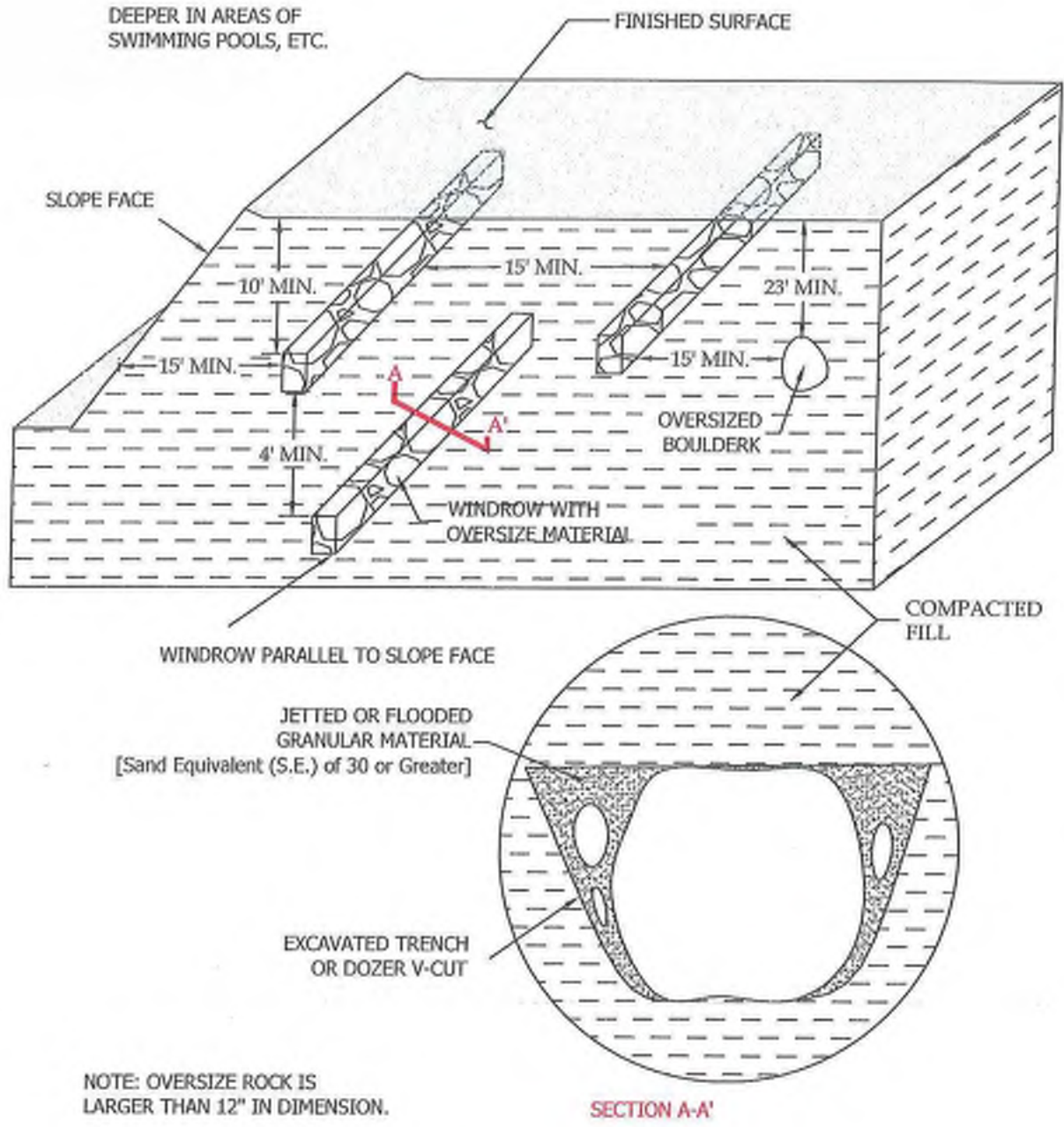
- 1) Continuous runs in excess of 500' shall use 8" diameter pipe.
- 2) Final 20' of pipe at outlet shall be non-perforated and backfilled with fine-grained material.



OUTLET DETAIL



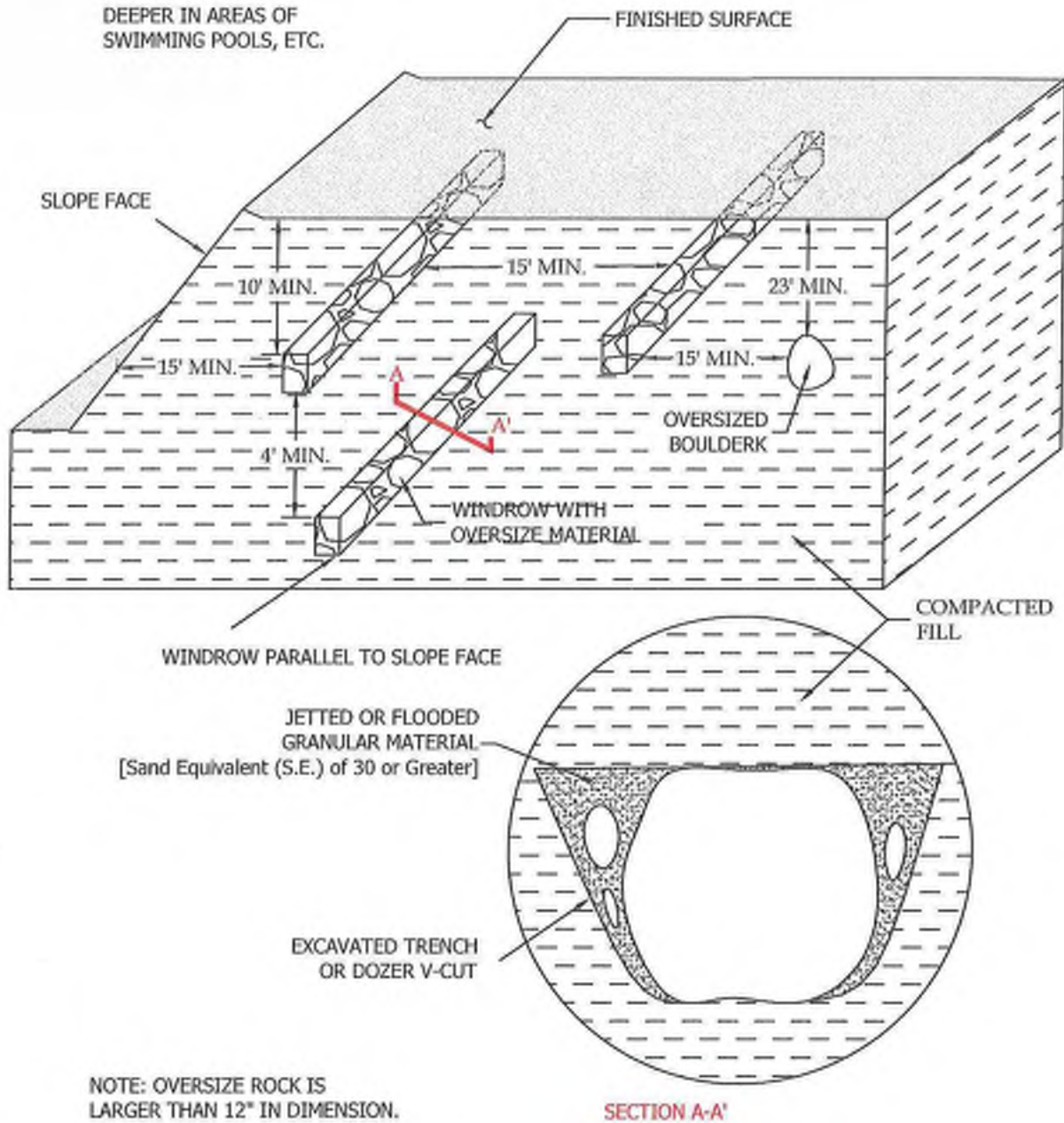
**CANYON &
STREET
SUBDRAINS**



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



OVERSIZE ROCK DISPOSAL

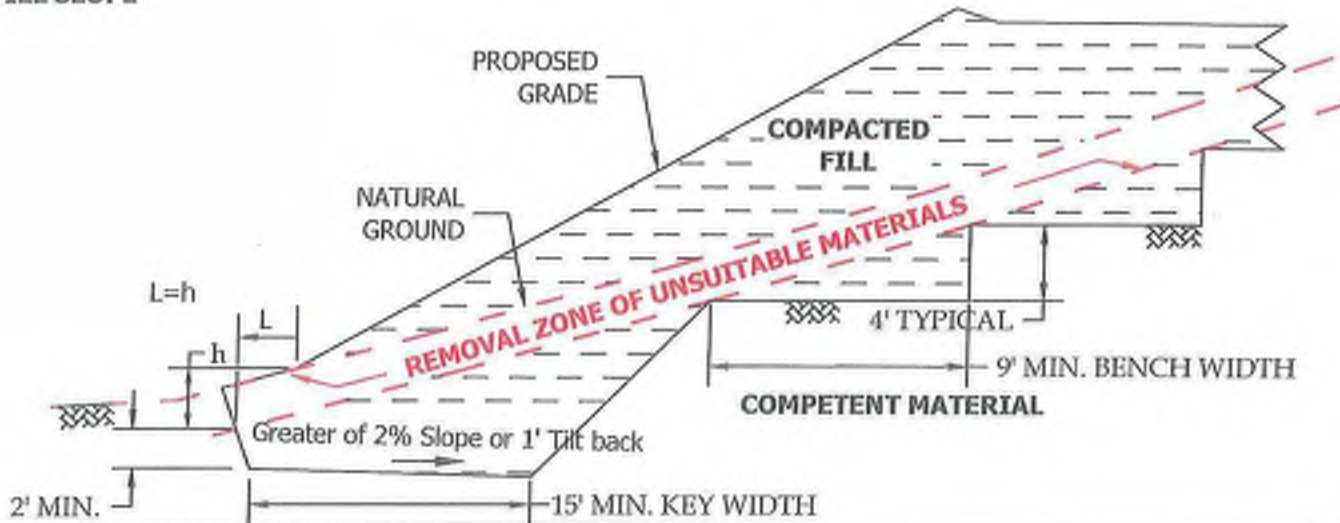


Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

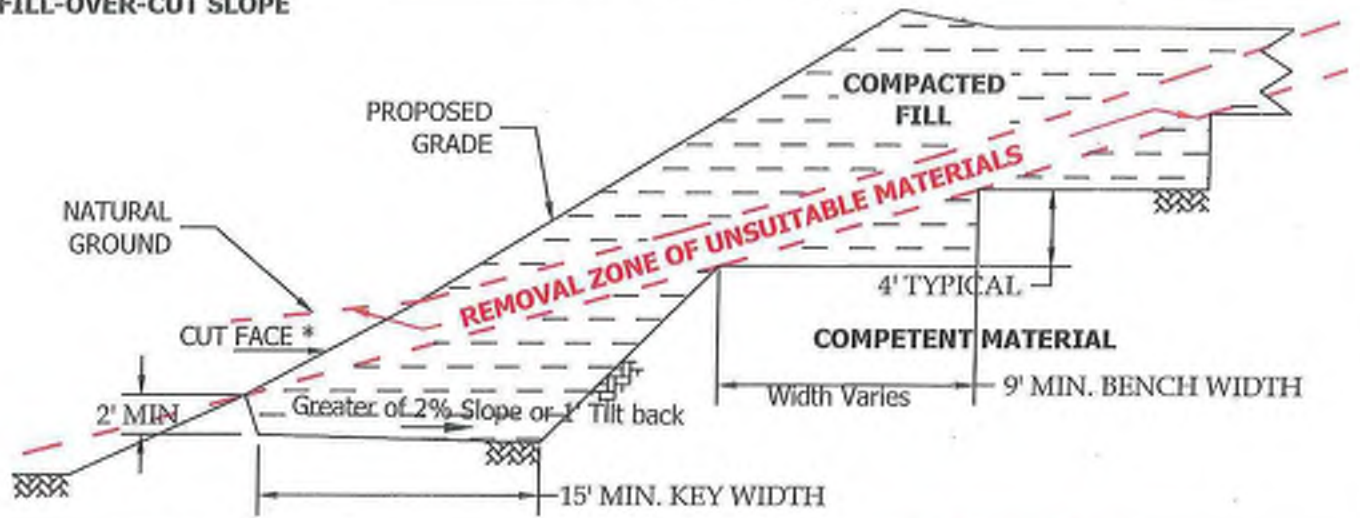


OVERSIZE ROCK DISPOSAL

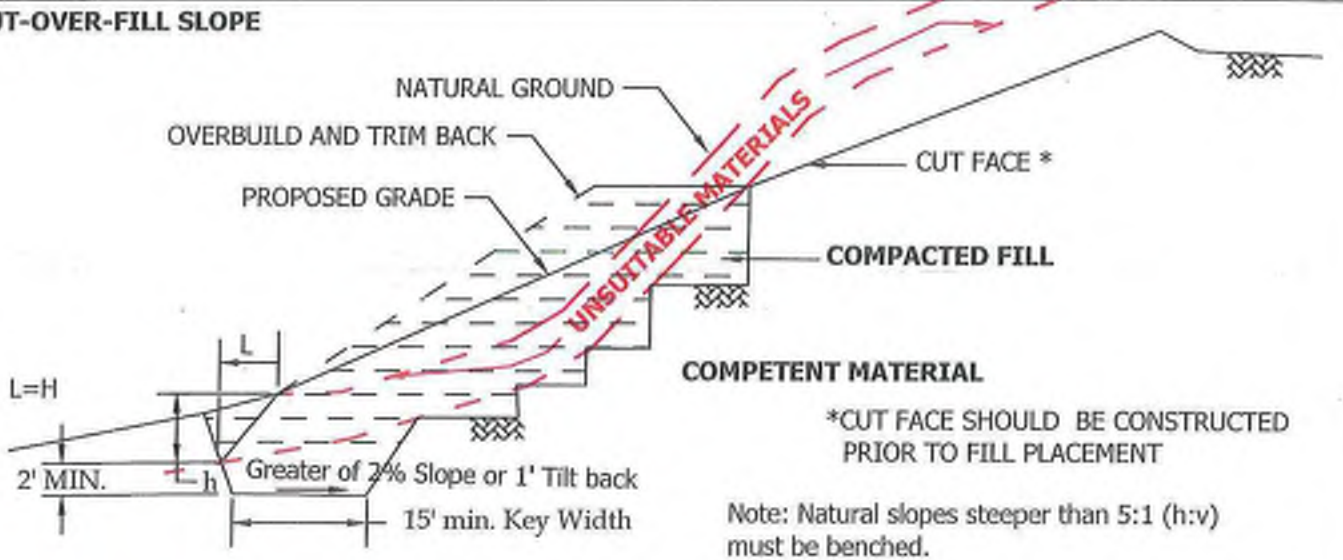
FILL SLOPE



FILL-OVER-CUT SLOPE



CUT-OVER-FILL SLOPE



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



KEYING AND BENCHING

Appendix F
Slope Stability Report



DYNAMIC GEOTECHNICAL SOLUTIONS

Geotechnical • Environmental • Materials Testing

GLOBAL STABILTIY ANALYSIS OF PROPOSED CUT AND FILL SLOPES, RELATIVE TO PROPOSED GATEWAY HEIGHTS, 108 CLUSTER UNIT DEVELOPMENT, CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, CALIFORNIA.

***Dated: June 15, 2021
Project No. D21-1029-10***

Prepared For:

***Mr. Beau Cooper
United Engineering Group
8885 Haven Ave, STE 195
Rancho Cucamonga, California 91730***

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



DYNAMIC GEOTECHNICAL SOLUTIONS

Geotechnical • Environmental • Materials Testing

June 15, 2021

Project No. D21-1029-10

Mr. Beau Cooper
 United Engineering Group
 8885 Haven Ave, STE 195
 Rancho Cucamonga, California 91730

Subject: *Global Stability Analysis of Proposed Cut and Fill Slopes, Relative to Proposed Gateway Heights, 108 Cluster Unit Development, City of Moreno Valley, County of Riverside, California.*

1.0 Introduction

Dynamic Geotechnical Solutions, Inc. (DGS) is pleased to submit herewith our slope global stability report for the proposed cut and fill slopes, relative to proposed Gateway Heights, 108 Cluster Unit Development, City of Moreno Valley, County of Riverside, California. This report presents the results of our global stability analyses, conclusions, and recommendations pertaining to the proposed cut and fill slopes within the proposed residential development.

2.0 Background

There are proposed cut slopes and fills slopes, per the referenced conceptual grading plans by United Engineering Group, which have proposed maximum heights of 32 feet and 39 feet above grade. The most critical cut and fill slopes were evaluated during DGS's global stability analysis.

3.0 Laboratory Analysis

No additional laboratory testing was conducted for the global stability analysis. Parameters used in evaluating global stability for the subject cut and fill slopes were derived from previous laboratory testing presented in the referenced report by LGC Geo-Environmental (Appendix A).

4.0 Global Stability Analysis

A global stability analysis was performed for the cut slope above lots 10-12 and the fill slope below lots 4-5. The slopes were modeled in the depicted location per sheet 2 of the referenced conceptual grading plans. The global stability analysis was performed under static and pseudo-static conditions, as presented in Appendix B.

4.1 Static Condition

Static conditions that were modeled during the global stability analysis were intended to simulate the day-to-day functionality of the proposed graded slopes. These conditions do not incorporate earthquake loading into the analysis. Previous shear strength and cohesion values obtained from the referenced reports (Appendix A) were used in the global stability analysis.

4.2 Pseudo-Static Condition

Pseudo-static conditions attempt to model the proposed graded slopes when earthquake loads are imposed on the slope face. All pseudo-static conditions were modeled with an earthquake acceleration coefficient of 0.15 g. Previous shear strength and apparent cohesion values were used in the global stability analysis.

5.0 Results and Conclusions

Based on our slope global stability analyses, the proposed orientations, per the referenced conceptual grading plans, for proposed cut and fill slopes produce a minimum required factor of safety of 1.5 under static conditions, and a 1.15 factor of safety under pseudo-static (earthquake loading) conditions. Therefore, the proposed graded slopes are considered to be stable from a geotechnical engineering standpoint, provided the recommendations presented herein and the referenced geotechnical report are implemented.

6.0 Recommendations

All engineered graded slopes should be landscaped to prevent erosion over time of the slope face. During rough grading and composite wall installation, a geologist from LGC should be onsite to ensure that any adverse slope conditions do not arise, inspect fill slope keys, and to give in-field recommendations, as necessary. Additionally, all recommendations per the referenced conceptual grading plans and referenced report should be adhered to.

DGS should review any changes in the design prior to implementation to determine if future construction will conform to these report recommendations and the previous recommendations in the referenced geotechnical report.

7.0 Limitations

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report. The findings of this report are valid as of the present date. However, changes in the conditions of a property can and do occur with the passage of time, whether they be due to natural processes or the works of man, on this or adjacent properties.

Closure

If you have any questions regarding the content of this report, please do not hesitate to contact this office at your earliest convenience.

Sincerely,

DYNAMIC GEOTECHNICAL SOLUTIONS, INC.


Robert Sargent, RCE 92011
President/Civil Engineer



RS

Distribution: (4) Addressee

Attachments: Appendix A – References (*Rear of Text*)
Appendix B – Global Stability Analysis and Results (*Rear of Text*)
Plate 1 – Global Stability Cross Sections Location Map

APPENDIX A

REFERENCES

APPENDIX A**REFERENCES**

LGC Geo-Environmental, Inc., "Preliminary Geotechnical Investigation for the Proposed Single-Family Residential Development, Tentative Tract Map 37557, City of Moreno Valley, Riverside County, California," dated September 22, 2018 (Project No. G18-1648-10).

Conceptual Grading Plan (Preliminary) Sheet 5 of 7, Tract 37153, Riverside, California, Scale: 1 inch = 40 feet dated November 30, 2018.

APPENDIX B

GLOBAL STABILITY ANALYSIS AND RESULTS

APPENDIX B

GLOBAL STABILITY ANALYSIS AND RESULTS

1.0 Approach

After a review of the referenced plans and reports, the two proposed segmental walls, labeled as Wall C and Wall E, were evaluated for the global stability analysis. The global stability analysis was conducted using the geotechnical program GSTABL7 with STEDwin (Version 2.002). The Modified Bishop's Method was used to analyze rotational failure modes. The slope face, segmental walls, and any the conditions above the segmental walls were modeled in GSTABL7 as per the referenced plans. Two separate conditions were modeled and evaluated in GSTABL7; a static condition in which there are no earthquake loads applied, and a pseudo-static condition, in which earthquake loads are applied to the model. A coefficient of horizontal acceleration of 0.15g was used for the pseudo-static stability analysis. Additionally, all the conditions were evaluated without the proposed wall grids in place. If the proposed design meets or exceeds the minimum factors of safety (F.S.) without the grids modeled, then the design F.S. will be much greater.

2.0 Results

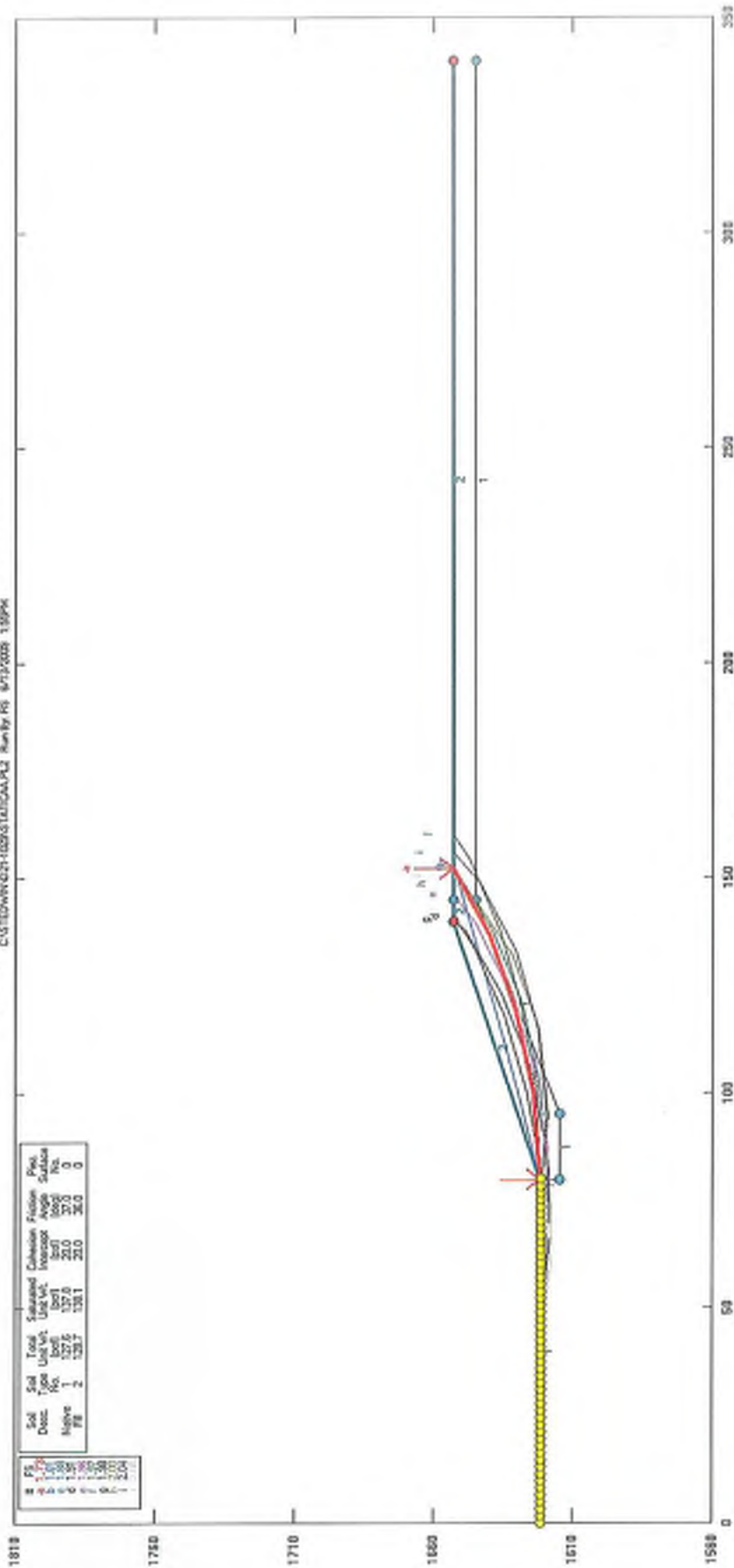
Table 1
Preliminary Design Global Stability Analysis Summary

Section (Section A-A')		Section (Section B-B')	
<i>Static</i>	<i>Pseudo-Static</i>	<i>Static</i>	<i>Pseudo-Static</i>
F.S. = 1.73	F.S. = 1.23	F.S. = 1.79	F.S. = 1.28

3.0 Presentation of Analysis and Conclusions

A visual and textual summary of the slope stability analysis of LGC's proposed design, for both the static and pseudo-static conditions, are presented in the following pages. In conclusion, the proposed graded slopes is considered stable from a geotechnical engineering standpoint. Special care must be taken to ensure all drainage requirements are met and that erosion over time of the slope face does not occur.

Gateway Heights Moreno Valley Section A-A' FILL Slope Static Case
 C:\STED\WY021-1029\STAT\CA\PL2 RunBy RS 8/13/2009 1:59PM



*** GSTABL7 ***

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.002, December 2001 **
 (All Rights Reserved-Unauthorized Use Prohibited)

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
 (Includes Spencer & Morgenstern-Price Type Analysis)
 Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
 Nonlinear Undrained Shear Strength, Curved Phi Envelope,
 Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
 Surfaces, Pseudo-Static Earthquake, and Applied Force Options.

 Analysis Run Date: 6/13/2009
 Time of Run: 1:55PM
 Run By: RS
 Input Data Filename: C:staticaa.
 Output Filename: C:staticaa.OUT
 Unit System: English
 Plotted Output Filename: C:staticaa.PLT
 PROBLEM DESCRIPTION: Gateway Heights Moreno Valley
 Section A-A' Fill Slope Static Case

BOUNDARY COORDINATES

4 Top Boundaries
 8 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	1621.50	80.00	1621.50	1
2	80.00	1621.50	140.00	1653.00	2
3	140.00	1653.00	145.00	1653.00	2
4	145.00	1653.00	340.00	1653.00	2
5	80.00	1621.50	80.00	1615.00	1
6	80.00	1615.00	95.00	1615.00	1
7	95.00	1615.00	145.00	1645.00	1
8	145.00	1645.00	340.00	1645.00	1

User Specified Y-Origin = 1560.00(ft)

ISOTROPIC SOIL PARAMETERS

2 Type(s) of Soil

Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	127.6	137.8	20.0	37.0	0.00	0.0	0
2	128.7	138.1	20.0	36.0	0.00	0.0	0

A Critical Failure Surface Searching Method, Using A Random
 Technique For Generating Circular Surfaces, Has Been Specified.
 1000 Trial Surfaces Have Been Generated.

20 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced
 Along The Ground Surface Between X = 0.00(ft)
 and X = 80.00(ft)
 Each Surface Terminates Between X = 140.00(ft)
 and X = 340.00(ft)

Unless Further Limitations Were Imposed, The Minimum Elevation
 At Which A Surface Extends Is Y = 1560.00(ft)
 20.00(ft) Line Segments Define Each Trial Failure Surface.
 Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Evaluated. They Are
 Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Total Number of Trial Surfaces Evaluated = 1000

Statistical Data On All Valid FS Values:

FS Max = 14.716 FS Min = 1.728 FS Ave = 5.601

Standard Deviation = 2.335 Coefficient of Variation = 41.69 %

Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	80.00	1621.50
2	99.82	1624.18

3 118.82 1630.42
 4 136.37 1640.02
 5 151.88 1652.64
 6 152.18 1653.00
 Circle Center At X = 75.39 ; Y = 1730.52 ; and Radius = 109.12

Factor of Safety
 *** 1.728 ***

Individual data on the 7 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force		Tie Force		Earthquake Force		
			Top (lbs)	Bot (lbs)	Norm (lbs)	Tan (lbs)	Hor (lbs)	Ver (lbs)	Surcharge Load (lbs)
1	19.8	9855.1	0.0	0.0	0.	0.	0.0	0.0	0.0
2	19.0	23462.4	0.0	0.0	0.	0.	0.0	0.0	0.0
3	17.5	25453.1	0.0	0.0	0.	0.	0.0	0.0	0.0
4	3.6	4931.1	0.0	0.0	0.	0.	0.0	0.0	0.0
5	5.0	5143.4	0.0	0.0	0.	0.	0.0	0.0	0.0
6	6.9	2794.4	0.0	0.0	0.	0.	0.0	0.0	0.0
7	0.3	6.9	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	80.00	1621.50
2	98.51	1629.09
3	116.93	1636.87
4	135.27	1644.84
5	153.50	1653.00

Circle Center At X = -633.02 ; Y = 3386.80 ; and Radius = 1903.86

Factor of Safety
 *** 1.811 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	62.04	1621.50
2	81.92	1619.26
3	101.79	1621.47
4	120.70	1628.00
5	137.70	1638.53
6	151.95	1652.56
7	152.23	1653.00

Circle Center At X = 81.99 ; Y = 1709.41 ; and Radius = 90.14

Factor of Safety
 *** 1.885 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	40.82	1621.50
2	60.73	1619.64
3	80.66	1621.30
4	99.99	1626.43
5	118.12	1634.87
6	134.49	1646.36
7	141.10	1653.00

Circle Center At X = 61.30 ; Y = 1733.25 ; and Radius = 113.61

Factor of Safety
 *** 1.909 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.35	1621.50
2	67.06	1618.12
3	87.04	1618.96
4	106.41	1623.96
5	124.29	1632.92
6	139.90	1645.42
7	146.07	1653.00

Circle Center At X = 73.12 ; Y = 1712.76 ; and Radius = 94.83

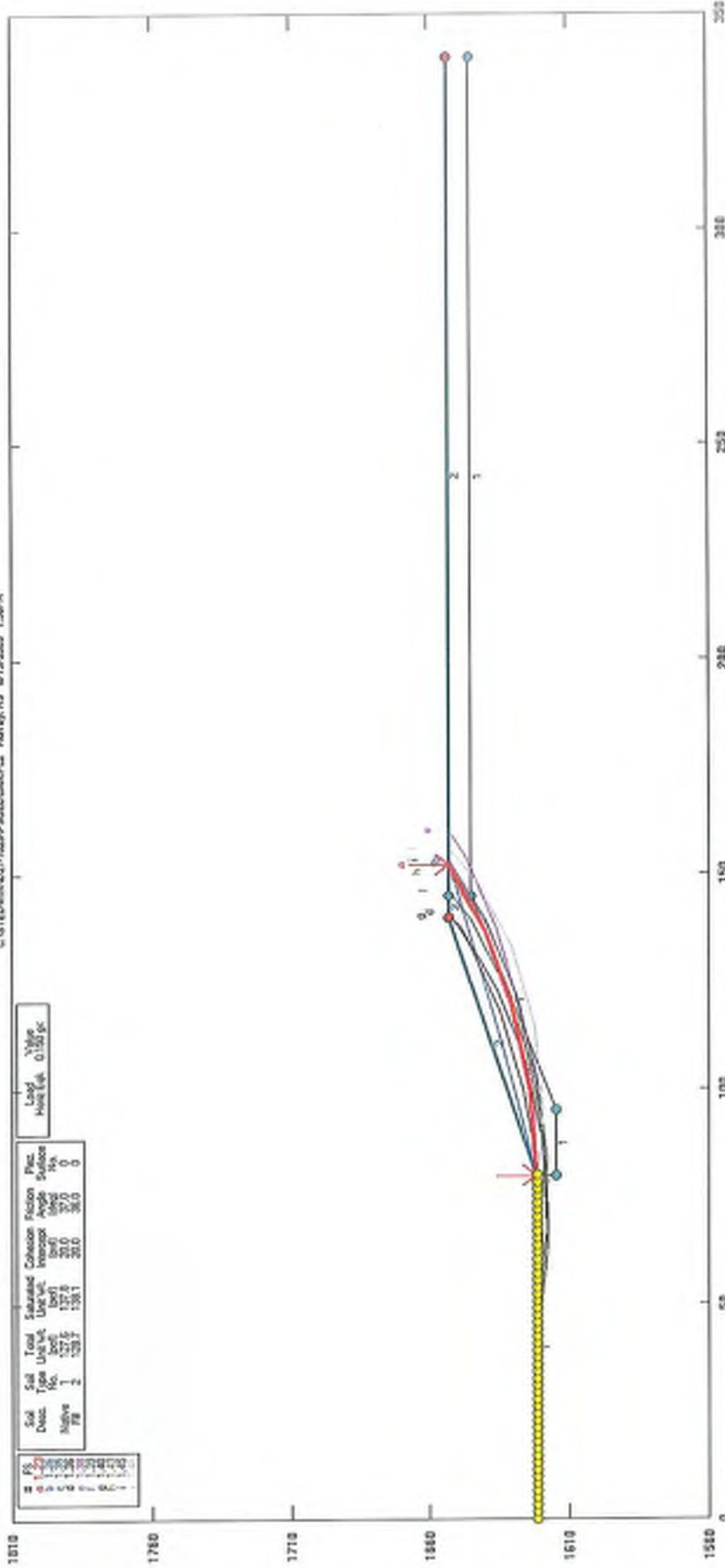
```

Factor of Safety
*** 1.957 ***
Failure Surface Specified By 6 Coordinate Points
Point X-Surf Y-Surf
No. (ft) (ft)
1 80.00 1621.50
2 99.94 1623.08
3 119.32 1628.03
4 137.58 1636.19
5 154.19 1647.33
6 160.14 1653.00
Circle Center At X = 81.16 ; Y = 1736.25 ; and Radius = 114.75
Factor of Safety
*** 1.968 ***
Failure Surface Specified By 7 Coordinate Points
Point X-Surf Y-Surf
No. (ft) (ft)
1 47.35 1621.50
2 67.09 1618.30
3 87.04 1619.68
4 106.16 1625.56
5 123.44 1635.63
6 137.97 1649.37
7 140.36 1653.00
Circle Center At X = 71.10 ; Y = 1705.54 ; and Radius = 87.33
Factor of Safety
*** 1.981 ***
Failure Surface Specified By 6 Coordinate Points
Point X-Surf Y-Surf
No. (ft) (ft)
1 75.10 1621.50
2 94.90 1618.64
3 114.58 1622.18
4 132.14 1631.77
5 145.76 1646.41
6 148.77 1653.00
Circle Center At X = 93.84 ; Y = 1679.57 ; and Radius = 61.02
Factor of Safety
*** 2.003 ***
Failure Surface Specified By 6 Coordinate Points
Point X-Surf Y-Surf
No. (ft) (ft)
1 75.10 1621.50
2 95.01 1619.53
3 114.76 1622.67
4 133.07 1630.72
5 148.74 1643.15
6 156.14 1653.00
Circle Center At X = 92.74 ; Y = 1696.11 ; and Radius = 76.67
Factor of Safety
*** 2.041 ***
Failure Surface Specified By 7 Coordinate Points
Point X-Surf Y-Surf
No. (ft) (ft)
1 40.82 1621.50
2 60.51 1618.04
3 80.51 1618.19
4 100.15 1621.97
5 118.78 1629.25
6 135.79 1639.77
7 150.39 1653.00
Circle Center At X = 69.64 ; Y = 1727.64 ; and Radius = 109.99
Factor of Safety
*** 2.051 ***
**** END OF GSTABL7 OUTPUT ****

```


Gateway Heights Moreno Valley Section A-A' Fill Slope Pseudo-Static Case

C:\STED\A\201-1009\PSUD\SAPL2 Run 8c.RS 6/13/2009 1:50PM



*** GSTABL7 ***

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.002, December 2001 **
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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
 (Includes Spencer & Morgenstern-Price Type Analysis)
 Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
 Nonlinear Undrained Shear Strength, Curved Phi Envelope,
 Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
 Surfaces, Pseudo-Static Earthquake, and Applied Force Options.

 Analysis Run Date: 6/13/2009
 Time of Run: 1:56PM
 Run By: RS
 Input Data Filename: C:psuedoaa.
 Output Filename: C:psuedoaa.OUT
 Unit System: English
 Plotted Output Filename: C:psuedoaa.PLT

PROBLEM DESCRIPTION: Gateway Heights Moreno Valley
 Section A-A'Fill Slope PsuedoStatic Case

BOUNDARY COORDINATES

4 Top Boundaries
 8 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	1621.50	80.00	1621.50	1
2	80.00	1621.50	140.00	1653.00	2
3	140.00	1653.00	145.00	1653.00	2
4	145.00	1653.00	340.00	1653.00	2
5	80.00	1621.50	80.00	1615.00	1
6	80.00	1615.00	95.00	1615.00	1
7	95.00	1615.00	145.00	1645.00	1
8	145.00	1645.00	340.00	1645.00	1

User Specified Y-Origin = 1560.00(ft)

ISOTROPIC SOIL PARAMETERS

2 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	127.6	137.8	20.0	37.0	0.00	0.0	0
2	128.7	138.1	20.0	36.0	0.00	0.0	0

A Horizontal Earthquake Loading Coefficient Of 0.150 Has Been Assigned

A Vertical Earthquake Loading Coefficient Of 0.000 Has Been Assigned

Cavitation Pressure = 0.0(psf)

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

1000 Trial Surfaces Have Been Generated.

20 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 0.00(ft) and X = 80.00(ft)

Each Surface Terminates Between X = 140.00(ft) and X = 340.00(ft)

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 1560.00(ft)

20.00(ft) Line Segments Define Each Trial Failure Surface. Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Evaluated. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Total Number of Trial Surfaces Evaluated = 1000

Statistical Data On All Valid FS Values:

FS Max = 5.101 FS Min = 1.234 FS Ave = 2.931
 Standard Deviation = 0.739 Coefficient of Variation = 25.21 %

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	80.00	1621.50
2	99.82	1624.18
3	118.82	1630.42
4	136.37	1640.02
5	151.88	1652.64
6	152.18	1653.00

Circle Center At X = 75.39 ; Y = 1730.52 ; and Radius = 109.12

Factor of Safety

*** 1.234 ***

Individual data on the 7 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force		Tie Force		Earthquake Force		Surcharge Load (lbs)
			Top (lbs)	Bot (lbs)	Norm (lbs)	Tan (lbs)	Hor (lbs)	Ver (lbs)	
1	19.8	9855.1	0.0	0.0	0.	0.	1478.3	0.0	0.0
2	19.0	23462.4	0.0	0.0	0.	0.	3519.4	0.0	0.0
3	17.5	25453.1	0.0	0.0	0.	0.	3818.0	0.0	0.0
4	3.6	4931.1	0.0	0.0	0.	0.	739.7	0.0	0.0
5	5.0	5143.4	0.0	0.0	0.	0.	771.5	0.0	0.0
6	6.9	2794.4	0.0	0.0	0.	0.	419.2	0.0	0.0
7	0.3	6.9	0.0	0.0	0.	0.	1.0	0.0	0.0

Failure Surface Specified By 5 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	80.00	1621.50
2	98.51	1629.09
3	116.93	1636.87
4	135.27	1644.84
5	153.50	1653.00

Circle Center At X = -633.02 ; Y = 3386.80 ; and Radius = 1903.86

Factor of Safety

*** 1.265 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	62.04	1621.50
2	81.92	1619.26
3	101.79	1621.47
4	120.70	1628.00
5	137.70	1638.53
6	151.95	1652.56
7	152.23	1653.00

Circle Center At X = 81.99 ; Y = 1709.41 ; and Radius = 90.14

Factor of Safety

*** 1.349 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	40.82	1621.50
2	60.73	1619.64
3	80.66	1621.30
4	99.99	1626.43
5	118.12	1634.87
6	134.49	1646.36
7	141.10	1653.00

Circle Center At X = 61.30 ; Y = 1733.25 ; and Radius = 113.61

Factor of Safety

*** 1.355 ***

Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	80.00	1621.50
2	99.94	1623.08
3	119.32	1628.03

4 137.58 1636.19
 5 154.19 1647.33
 6 160.14 1653.00
 Circle Center At X = 81.16 ; Y = 1736.25 ; and Radius = 114.75
 Factor of Safety
 *** 1.376 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.35	1621.50
2	67.06	1618.12
3	87.04	1618.96
4	106.41	1623.96
5	124.29	1632.92
6	139.90	1645.42
7	146.07	1653.00

Circle Center At X = 73.12 ; Y = 1712.76 ; and Radius = 94.83
 Factor of Safety
 *** 1.387 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.35	1621.50
2	67.09	1618.30
3	87.04	1619.68
4	106.16	1625.56
5	123.44	1635.63
6	137.97	1649.37
7	140.36	1653.00

Circle Center At X = 71.10 ; Y = 1705.54 ; and Radius = 87.33
 Factor of Safety
 *** 1.403 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	40.82	1621.50
2	60.51	1618.04
3	80.51	1618.19
4	100.15	1621.97
5	118.78	1629.25
6	135.79	1639.77
7	150.39	1653.00

Circle Center At X = 69.64 ; Y = 1727.64 ; and Radius = 109.99
 Factor of Safety
 *** 1.434 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.08	1621.50
2	63.76	1617.95
3	83.76	1618.05
4	103.41	1621.81
5	122.03	1629.09
6	139.02	1639.66
7	153.61	1653.00

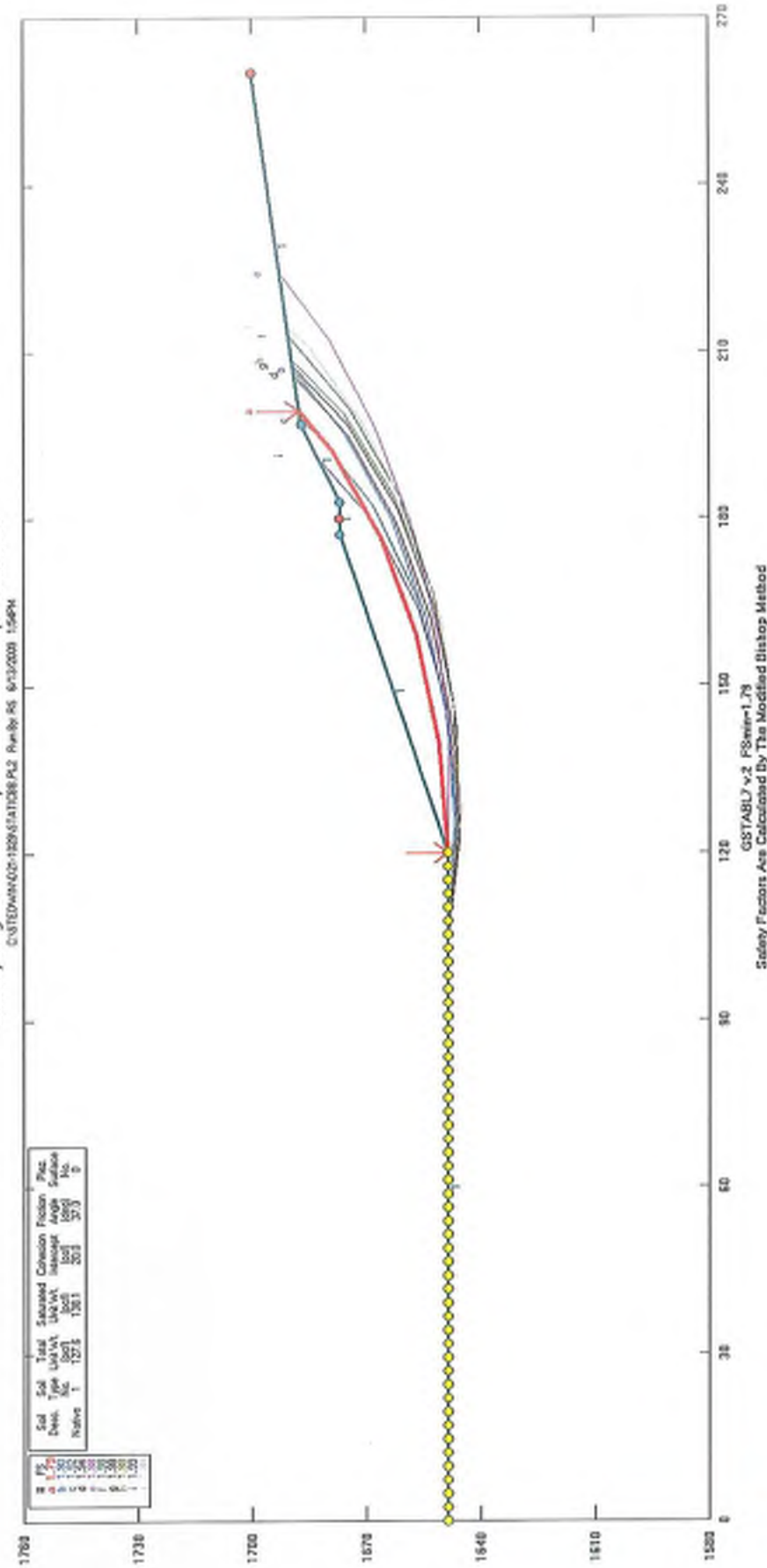
Circle Center At X = 73.20 ; Y = 1726.51 ; and Radius = 108.97
 Factor of Safety
 *** 1.454 ***

Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	75.10	1621.50
2	95.01	1619.53
3	114.76	1622.67
4	133.07	1630.72
5	148.74	1643.15
6	156.14	1653.00

Circle Center At X = 92.74 ; Y = 1696.11 ; and Radius = 76.67
Factor of Safety
*** 1.457 ***
**** END OF GSTABL7 OUTPUT ****

Gateway Heights Moreno Valley Section B-8' Cut Slope Static Case



PS	Soil Type	Total Unit Wt (pcf)	Saturated Unit Wt (pcf)	Severed Soil (pcf)	cohesion (ksf)	Friction Angle (deg)	Fail. Surface No.
1	CL	127.5	136.1	101	20.0	37.0	1
2	CL	127.5	136.1	101	20.0	37.0	2
3	CL	127.5	136.1	101	20.0	37.0	3
4	CL	127.5	136.1	101	20.0	37.0	4
5	CL	127.5	136.1	101	20.0	37.0	5
6	CL	127.5	136.1	101	20.0	37.0	6
7	CL	127.5	136.1	101	20.0	37.0	7
8	CL	127.5	136.1	101	20.0	37.0	8
9	CL	127.5	136.1	101	20.0	37.0	9
10	CL	127.5	136.1	101	20.0	37.0	10
11	CL	127.5	136.1	101	20.0	37.0	11
12	CL	127.5	136.1	101	20.0	37.0	12
13	CL	127.5	136.1	101	20.0	37.0	13
14	CL	127.5	136.1	101	20.0	37.0	14
15	CL	127.5	136.1	101	20.0	37.0	15
16	CL	127.5	136.1	101	20.0	37.0	16
17	CL	127.5	136.1	101	20.0	37.0	17
18	CL	127.5	136.1	101	20.0	37.0	18
19	CL	127.5	136.1	101	20.0	37.0	19
20	CL	127.5	136.1	101	20.0	37.0	20
21	CL	127.5	136.1	101	20.0	37.0	21
22	CL	127.5	136.1	101	20.0	37.0	22
23	CL	127.5	136.1	101	20.0	37.0	23
24	CL	127.5	136.1	101	20.0	37.0	24
25	CL	127.5	136.1	101	20.0	37.0	25
26	CL	127.5	136.1	101	20.0	37.0	26
27	CL	127.5	136.1	101	20.0	37.0	27
28	CL	127.5	136.1	101	20.0	37.0	28
29	CL	127.5	136.1	101	20.0	37.0	29
30	CL	127.5	136.1	101	20.0	37.0	30
31	CL	127.5	136.1	101	20.0	37.0	31
32	CL	127.5	136.1	101	20.0	37.0	32
33	CL	127.5	136.1	101	20.0	37.0	33
34	CL	127.5	136.1	101	20.0	37.0	34
35	CL	127.5	136.1	101	20.0	37.0	35
36	CL	127.5	136.1	101	20.0	37.0	36
37	CL	127.5	136.1	101	20.0	37.0	37
38	CL	127.5	136.1	101	20.0	37.0	38
39	CL	127.5	136.1	101	20.0	37.0	39
40	CL	127.5	136.1	101	20.0	37.0	40
41	CL	127.5	136.1	101	20.0	37.0	41
42	CL	127.5	136.1	101	20.0	37.0	42
43	CL	127.5	136.1	101	20.0	37.0	43
44	CL	127.5	136.1	101	20.0	37.0	44
45	CL	127.5	136.1	101	20.0	37.0	45
46	CL	127.5	136.1	101	20.0	37.0	46
47	CL	127.5	136.1	101	20.0	37.0	47
48	CL	127.5	136.1	101	20.0	37.0	48
49	CL	127.5	136.1	101	20.0	37.0	49
50	CL	127.5	136.1	101	20.0	37.0	50
51	CL	127.5	136.1	101	20.0	37.0	51
52	CL	127.5	136.1	101	20.0	37.0	52
53	CL	127.5	136.1	101	20.0	37.0	53
54	CL	127.5	136.1	101	20.0	37.0	54
55	CL	127.5	136.1	101	20.0	37.0	55
56	CL	127.5	136.1	101	20.0	37.0	56
57	CL	127.5	136.1	101	20.0	37.0	57
58	CL	127.5	136.1	101	20.0	37.0	58
59	CL	127.5	136.1	101	20.0	37.0	59
60	CL	127.5	136.1	101	20.0	37.0	60
61	CL	127.5	136.1	101	20.0	37.0	61
62	CL	127.5	136.1	101	20.0	37.0	62
63	CL	127.5	136.1	101	20.0	37.0	63
64	CL	127.5	136.1	101	20.0	37.0	64
65	CL	127.5	136.1	101	20.0	37.0	65
66	CL	127.5	136.1	101	20.0	37.0	66
67	CL	127.5	136.1	101	20.0	37.0	67
68	CL	127.5	136.1	101	20.0	37.0	68
69	CL	127.5	136.1	101	20.0	37.0	69
70	CL	127.5	136.1	101	20.0	37.0	70
71	CL	127.5	136.1	101	20.0	37.0	71
72	CL	127.5	136.1	101	20.0	37.0	72
73	CL	127.5	136.1	101	20.0	37.0	73
74	CL	127.5	136.1	101	20.0	37.0	74
75	CL	127.5	136.1	101	20.0	37.0	75
76	CL	127.5	136.1	101	20.0	37.0	76
77	CL	127.5	136.1	101	20.0	37.0	77
78	CL	127.5	136.1	101	20.0	37.0	78
79	CL	127.5	136.1	101	20.0	37.0	79
80	CL	127.5	136.1	101	20.0	37.0	80
81	CL	127.5	136.1	101	20.0	37.0	81
82	CL	127.5	136.1	101	20.0	37.0	82
83	CL	127.5	136.1	101	20.0	37.0	83
84	CL	127.5	136.1	101	20.0	37.0	84
85	CL	127.5	136.1	101	20.0	37.0	85
86	CL	127.5	136.1	101	20.0	37.0	86
87	CL	127.5	136.1	101	20.0	37.0	87
88	CL	127.5	136.1	101	20.0	37.0	88
89	CL	127.5	136.1	101	20.0	37.0	89
90	CL	127.5	136.1	101	20.0	37.0	90
91	CL	127.5	136.1	101	20.0	37.0	91
92	CL	127.5	136.1	101	20.0	37.0	92
93	CL	127.5	136.1	101	20.0	37.0	93
94	CL	127.5	136.1	101	20.0	37.0	94
95	CL	127.5	136.1	101	20.0	37.0	95
96	CL	127.5	136.1	101	20.0	37.0	96
97	CL	127.5	136.1	101	20.0	37.0	97
98	CL	127.5	136.1	101	20.0	37.0	98
99	CL	127.5	136.1	101	20.0	37.0	99
100	CL	127.5	136.1	101	20.0	37.0	100



*** GSTABL7 ***

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.002, December 2001 **
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SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
 (Includes Spencer & Morgenstern-Price Type Analysis)
 Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
 Nonlinear Undrained Shear Strength, Curved Phi Envelope,
 Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
 Surfaces, Pseudo-Static Earthquake, and Applied Force Options.

 Analysis Run Date: 6/13/2009
 Time of Run: 1:54PM
 Run By: RS
 Input Data Filename: C:\staticbb.
 Output Filename: C:\staticbb.OUT
 Unit System: English
 Plotted Output Filename: C:\staticbb.PLT
 PROBLEM DESCRIPTION: Gateway Heights Moreno Valley
 Section B-B' Cut Slope Static Case

BOUNDARY COORDINATES

5 Top Boundaries
 5 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	1648.50	120.00	1648.50	1
2	120.00	1648.50	177.00	1677.00	1
3	177.00	1677.00	183.00	1677.00	1
4	183.00	1677.00	197.00	1687.00	1
5	197.00	1687.00	260.00	1700.00	1

User Specified Y-Origin = 1580.00(ft)

ISOTROPIC SOIL PARAMETERS

1 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	127.6	138.1	20.0	37.0	0.00	0.0	0

A Critical Failure Surface Searching Method, Using A Random
 Technique For Generating Circular Surfaces, Has Been Specified.
 1000 Trial Surfaces Have Been Generated.

20 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced
 Along The Ground Surface Between X = 0.00(ft)
 and X = 120.00(ft)

Each Surface Terminates Between X = 180.00(ft)
 and X = 260.00(ft)

Unless Further Limitations Were Imposed, The Minimum Elevation
 At Which A Surface Extends Is Y = 1600.00(ft)

20.00(ft) Line Segments Define Each Trial Failure Surface.
 Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Evaluated. They Are
 Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Total Number of Trial Surfaces Evaluated = 1000

Statistical Data On All Valid FS Values:

FS Max = 8.363 FS Min = 1.790 FS Ave = 3.547

Standard Deviation = 1.000 Coefficient of Variation = 28.20 %

Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	1648.50
2	139.87	1650.80
3	158.95	1656.80
4	176.56	1666.28
5	192.07	1678.90
6	199.25	1687.47

Circle Center At X = 118.31 ; Y = 1752.03 ; and Radius = 103.54

Factor of Safety
 *** 1.790 ***

Slice No.	Width (ft)	Weight (lbs)	Individual data on the		8 slices		Earthquake		
			Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Force Hor (lbs)	Force Ver (lbs)	Surcharge Load (lbs)
1	19.9	9677.7	0.0	0.0	0.	0.	0.0	0.0	0.0
2	19.1	22900.2	0.0	0.0	0.	0.	0.0	0.0	0.0
3	17.6	24357.2	0.0	0.0	0.	0.	0.0	0.0	0.0
4	0.4	588.9	0.0	0.0	0.	0.	0.0	0.0	0.0
5	6.0	6064.1	0.0	0.0	0.	0.	0.0	0.0	0.0
6	9.1	5816.0	0.0	0.0	0.	0.	0.0	0.0	0.0
7	4.9	2137.7	0.0	0.0	0.	0.	0.0	0.0	0.0
8	2.3	319.3	0.0	0.0	0.	0.	0.0	0.0	0.0

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	102.86	1648.50
2	122.76	1646.48
3	142.67	1648.32
4	161.86	1653.95
5	179.62	1663.15
6	195.29	1675.58
7	206.75	1689.01

Circle Center At X = 123.22 ; Y = 1750.28 ; and Radius = 103.80

Factor of Safety
 *** 1.896 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	107.76	1648.50
2	127.66	1646.56
3	147.47	1649.35
4	166.07	1656.70
5	182.42	1668.21
6	195.63	1683.23
7	197.68	1687.14

Circle Center At X = 125.86 ; Y = 1731.23 ; and Radius = 84.68

Factor of Safety
 *** 1.918 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	102.86	1648.50
2	122.68	1645.80
3	142.62	1647.25
4	161.84	1652.77
5	179.51	1662.14
6	194.87	1674.95
7	205.82	1688.82

Circle Center At X = 125.71 ; Y = 1742.27 ; and Radius = 96.52

Factor of Safety
 *** 1.939 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	1648.50
2	140.00	1648.41
3	159.74	1651.61
4	178.68	1658.04
5	196.30	1667.50
6	212.12	1679.74
7	223.99	1692.57

Circle Center At X = 130.57 ; Y = 1768.78 ; and Radius = 120.75

Factor of Safety


```

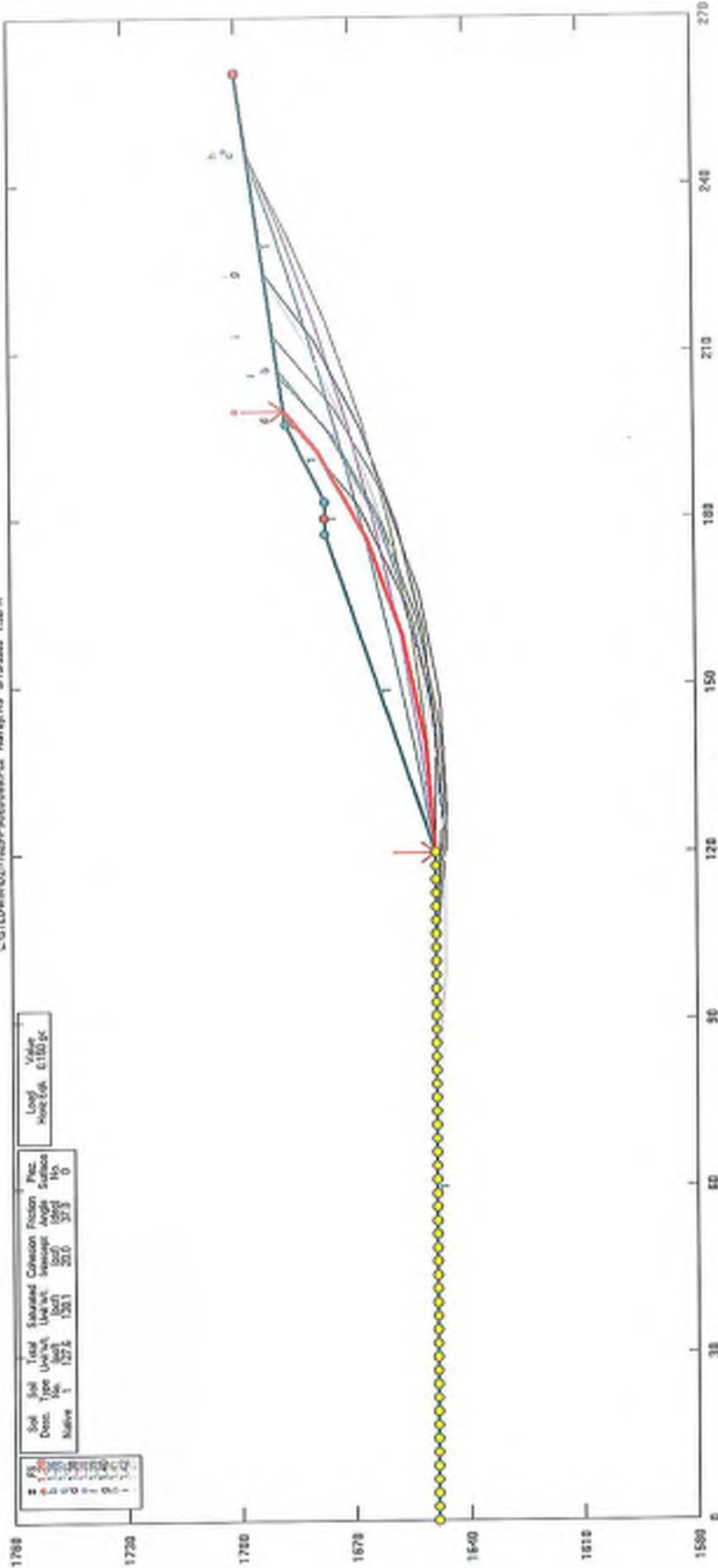
*** 1.978 ***
Failure Surface Specified By 8 Coordinate Points
Point   X-Surf   Y-Surf
No.     (ft)     (ft)
1       107.76   1648.50
2       127.56   1645.69
3       147.51   1647.01
4       166.78   1652.38
5       184.53   1661.60
6       200.01   1674.26
7       212.57   1689.83
8       212.79   1690.26
Circle Center At X = 131.21 ; Y = 1742.49 ; and Radius = 96.87
Factor of Safety
*** 1.980 ***
Failure Surface Specified By 7 Coordinate Points
Point   X-Surf   Y-Surf
No.     (ft)     (ft)
1       105.31   1648.50
2       125.05   1645.33
3       145.02   1646.53
4       164.24   1652.04
5       181.81   1661.61
6       196.87   1674.77
7       207.44   1689.15
Circle Center At X = 129.58 ; Y = 1736.61 ; and Radius = 91.39
Factor of Safety
*** 1.980 ***
Failure Surface Specified By 7 Coordinate Points
Point   X-Surf   Y-Surf
No.     (ft)     (ft)
1       107.76   1648.50
2       127.52   1645.45
3       147.47   1646.84
4       166.62   1652.60
5       184.03   1662.45
6       198.83   1675.91
7       208.20   1689.31
Circle Center At X = 131.28 ; Y = 1735.33 ; and Radius = 89.96
Factor of Safety
*** 1.984 ***
Failure Surface Specified By 6 Coordinate Points
Point   X-Surf   Y-Surf
No.     (ft)     (ft)
1       105.31   1648.50
2       125.13   1645.85
3       144.97   1648.37
4       163.50   1655.89
5       179.49   1667.91
6       191.31   1682.94
Circle Center At X = 125.38 ; Y = 1722.98 ; and Radius = 77.14
Factor of Safety
*** 1.985 ***
Failure Surface Specified By 8 Coordinate Points
Point   X-Surf   Y-Surf
No.     (ft)     (ft)
1       102.86   1648.50
2       122.62   1645.40
3       142.60   1646.12
4       162.09   1650.63
5       180.36   1658.77
6       196.74   1670.24
7       210.65   1684.61
8       214.56   1690.62
Circle Center At X = 128.91 ; Y = 1748.60 ; and Radius = 103.43
Factor of Safety
*** 1.994 ***

```

**** END OF GSTABL7 OUTPUT ****

Gateway Heights Moreno Valley Section B-B' Cut Slope Pseudo-Static Case

C:\TIED\02-1209\PS\00088.P.J Run by: RS 5/15/2020 1:23PM



Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7 v2, FS=1.28



*** GSTABL7 ***

** GSTABL7 by Garry H. Gregory, P.E. **

** Original Version 1.0, January 1996; Current Version 2.002, December 2001 **
 (All Rights Reserved-Unauthorized Use Prohibited)

SLOPE STABILITY ANALYSIS SYSTEM

Modified Bishop, Simplified Janbu, or GLE Method of Slices.
 (Includes Spencer & Morgenstern-Price Type Analysis)
 Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
 Nonlinear Undrained Shear Strength, Curved Phi Envelope,
 Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
 Surfaces, Pseudo-Static Earthquake, and Applied Force Options.

 Analysis Run Date: 5/15/2009
 Time of Run: 1:52PM
 Run By: RS
 Input Data Filename: C:\psuedobb.
 Output Filename: C:\psuedobb.OUT
 Unit System: English
 Plotted Output Filename: C:\psuedobb.PLT
 PROBLEM DESCRIPTION: Gateway Heights Moreno Valley
 Section B-B' Cut Slope PsuedoStatic Case

BOUNDARY COORDINATES

5 Top Boundaries
 5 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	1648.50	120.00	1648.50	1
2	120.00	1648.50	177.00	1677.00	1
3	177.00	1677.00	183.00	1677.00	1
4	183.00	1677.00	197.00	1687.00	1
5	197.00	1687.00	260.00	1700.00	1

User Specified Y-Origin = 1580.00(ft)

ISOTROPIC SOIL PARAMETERS

1 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	127.6	138.1	20.0	37.0	0.00	0.0	0

A Horizontal Earthquake Loading Coefficient

Of 0.150 Has Been Assigned

A Vertical Earthquake Loading Coefficient

Of 0.000 Has Been Assigned

Cavitation Pressure = 0.0(psf)

A Critical Failure Surface Searching Method, Using A Random

Technique For Generating Circular Surfaces, Has Been Specified.

1000 Trial Surfaces Have Been Generated.

20 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced

Along The Ground Surface Between X = 0.00(ft)

and X = 120.00(ft)

Each Surface Terminates Between X = 180.00(ft)

and X = 260.00(ft)

Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = 1600.00(ft)

20.00(ft) Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Evaluated. They Are

Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Total Number of Trial Surfaces Evaluated = 1000

Statistical Data On All Valid FS Values:

FS Max = 3.912 FS Min = 1.281 FS Ave = 2.294

Standard Deviation = 0.472 Coefficient of Variation = 20.57 %

Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	1648.50

2 139.87 1650.80
 3 158.95 1656.80
 4 176.56 1666.28
 5 192.07 1678.90
 6 199.25 1687.47

Circle Center At X = 118.31 ; Y = 1752.03 ; and Radius = 103.54

Factor of Safety
 *** 1.281 ***

Slice No.	Width (ft)	Weight (lbs)	Water Force		Tie Force		Earthquake Force		Surcharge Load (lbs)
			Top (lbs)	Bot (lbs)	Norm (lbs)	Tan (lbs)	Hor (lbs)	Ver (lbs)	
1	19.9	9677.7	0.0	0.0	0.	0.	1451.7	0.0	0.0
2	19.1	22900.2	0.0	0.0	0.	0.	3435.0	0.0	0.0
3	17.6	24357.2	0.0	0.0	0.	0.	3653.6	0.0	0.0
4	0.4	588.9	0.0	0.0	0.	0.	88.3	0.0	0.0
5	6.0	6064.1	0.0	0.0	0.	0.	909.6	0.0	0.0
6	9.1	5816.0	0.0	0.0	0.	0.	872.4	0.0	0.0
7	4.9	2137.7	0.0	0.0	0.	0.	320.7	0.0	0.0
8	2.3	319.3	0.0	0.0	0.	0.	47.9	0.0	0.0

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	102.86	1648.50
2	122.76	1646.48
3	142.67	1648.32
4	161.86	1653.95
5	179.62	1663.15
6	195.29	1675.58
7	206.75	1689.01

Circle Center At X = 123.22 ; Y = 1750.28 ; and Radius = 103.80

Factor of Safety
 *** 1.357 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	1648.50
2	139.27	1653.85
3	158.35	1659.86
4	177.21	1666.51
5	195.83	1673.80
6	214.20	1681.72
7	232.29	1690.25
8	245.37	1696.98

Circle Center At X = -26.51 ; Y = 2213.72 ; and Radius = 583.90

Factor of Safety
 *** 1.370 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	107.76	1648.50
2	127.66	1646.56
3	147.47	1649.35
4	166.07	1656.70
5	182.42	1668.21
6	195.63	1683.23
7	197.68	1687.14

Circle Center At X = 125.86 ; Y = 1731.23 ; and Radius = 84.68

Factor of Safety
 *** 1.377 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	1648.50
2	139.63	1652.35
3	158.99	1657.37

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

4	178.01	1663.54
5	196.63	1670.84
6	214.79	1679.23
7	232.40	1688.70
8	246.05	1697.12

Circle Center At X = 65.95 ; Y = 1976.33 ; and Radius = 332.26
Factor of Safety
*** 1.379 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	102.86	1648.50
2	122.68	1645.80
3	142.62	1647.25
4	161.84	1652.77
5	179.51	1662.14
6	194.87	1674.95
7	205.82	1688.82

Circle Center At X = 125.71 ; Y = 1742.27 ; and Radius = 96.52
Factor of Safety
*** 1.389 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	1648.50
2	140.00	1648.41
3	159.74	1651.61
4	178.68	1658.04
5	196.30	1667.50
6	212.12	1679.74
7	223.99	1692.57

Circle Center At X = 130.57 ; Y = 1768.78 ; and Radius = 120.75
Factor of Safety
*** 1.399 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	1648.50
2	139.90	1650.49
3	159.53	1654.31
4	178.73	1659.91
5	197.34	1667.25
6	215.19	1676.27
7	232.14	1686.89
8	245.37	1696.98

Circle Center At X = 108.50 ; Y = 1864.57 ; and Radius = 216.38
Factor of Safety
*** 1.410 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	107.76	1648.50
2	127.56	1645.69
3	147.51	1647.01
4	166.78	1652.38
5	184.53	1661.60
6	200.01	1674.26
7	212.57	1689.83
8	212.79	1690.26

Circle Center At X = 131.21 ; Y = 1742.49 ; and Radius = 96.87
Factor of Safety
*** 1.418 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	78.37	1648.50
2	98.22	1646.06

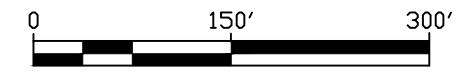
3	118.22	1646.03
4	138.08	1648.40
5	157.50	1653.16
6	176.22	1660.21
7	193.94	1669.47
8	210.43	1680.80
9	223.70	1692.51

Circle Center At X = 108.48 ; Y = 1811.48 ; and Radius = 165.74
Factor of Safety
*** 1.419 ***
**** END OF GSTABL7 OUTPUT ****



LEGEND
(Locations are Approximate)

Symbols
A — A' - Global Stability Cross Section Location for Composite Wall



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



DYNAMIC GEOTECHNICAL SOLUTIONS

27570 Commerce Center Dr., #128, Temeculca, CA 92590
 Phone: 951.297.2450 Fax: 951.719.2998

Robert Sargent
 Civil Engineer

GLOBAL STABILITY CROSS SECTIONS LOCATION MAP

Gateway Heights, 108 Cluster Unit Development
 City of Moreno Valley, County of Riverside, California

Name:	Gateway Heights
Project No.:	D21-1029-10
Client:	United Engineering Group
Scale:	1"=150'
Date:	June 2021
Reference:	United Engineering Group, 2021, "Conceptual Grading Plan"
Plate No.:	1 of 1

Appendix G
EDR Radius Map Report

Gateway Heights Residential Project

Not Reported

Moreno Valley, CA 92557

Inquiry Number: 6541790.2s

June 17, 2021

The EDR Radius Map™ Report with GeoCheck®

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

NOT REPORTED
MORENO VALLEY, CA 92557

COORDINATES

Latitude (North): 33.9593590 - 33° 57' 33.69"
Longitude (West): 117.2946020 - 117° 17' 40.56"
Universal Transverse Mercator: Zone 11
UTM X (Meters): 472780.5
UTM Y (Meters): 3757494.5
Elevation: 1680 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 5641312 RIVERSIDE EAST, CA
Version Date: 2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20140603
Source: USDA

MAPPED SITES SUMMARY

Target Property Address:
NOT REPORTED
MORENO VALLEY, CA 92557

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & DIRECTIC)
A1	MARCH AFB RIFLE RANG		FUDS	Higher	1428, 0.27(	st
A2	MARCH AFB RIFLE RANG		ENVIROSTOR	Higher	1428, 0.27(	st

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
 Proposed NPL..... Proposed National Priority List Sites
 NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
 SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
 RCRA-SQG..... RCRA - Small Quantity Generators
 RCRA-VSQG..... RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System

EXECUTIVE SUMMARY

US ENG CONTROLS..... Engineering Controls Sites List
 US INST CONTROLS..... Institutional Controls Sites List

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
 INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
 CPS-SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
 UST..... Active UST Facilities
 AST..... Aboveground Petroleum Storage Tank Facilities
 INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
 INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
 SWRCY..... Recycler Database
 HAULERS..... Registered Waste Tire Haulers Listing
 INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
 ODI..... Open Dump Inventory
 DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
 IHS OPEN DUMPS..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register

EXECUTIVE SUMMARY

HIST Cal-Sites.....	Historical Calsites Database
SCH.....	School Property Evaluation Program
CDL.....	Clandestine Drug Labs
Toxic Pits.....	Toxic Pits Cleanup Act Sites
CERS HAZ WASTE.....	CERS HAZ WASTE
US CDL.....	National Clandestine Laboratory Register
PFAS.....	PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST.....	SWEEPS UST Listing
HIST UST.....	Hazardous Substance Storage Container Database
CERS TANKS.....	California Environmental Reporting System (CERS) Tanks
CA FID UST.....	Facility Inventory Database

Local Land Records

LIENS.....	Environmental Liens Listing
LIENS 2.....	CERCLA Lien Information
DEED.....	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS.....	Hazardous Materials Information Reporting System
CHMIRS.....	California Hazardous Material Incident Report System
LDS.....	Land Disposal Sites Listing
MCS.....	Military Cleanup Sites Listing
SPILLS 90.....	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR.....	RCRA - Non Generators / No Longer Regulated
DOD.....	Department of Defense Sites
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR.....	Financial Assurance Information
EPA WATCH LIST.....	EPA WATCH LIST
2020 COR ACTION.....	2020 Corrective Action Program List
TSCA.....	Toxic Substances Control Act
TRIS.....	Toxic Chemical Release Inventory System
SSTS.....	Section 7 Tracking Systems
ROD.....	Records Of Decision
RMP.....	Risk Management Plans
RAATS.....	RCRA Administrative Action Tracking System
PRP.....	Potentially Responsible Parties
PADS.....	PCB Activity Database System
ICIS.....	Integrated Compliance Information System
FTTS.....	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS.....	Material Licensing Tracking System
COAL ASH DOE.....	Steam-Electric Plant Operation Data
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER.....	PCB Transformer Registration Database
RADINFO.....	Radiation Information Database
HIST FTTS.....	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS.....	Incident and Accident Data

EXECUTIVE SUMMARY

CONSENT.....	Superfund (CERCLA) Consent Decrees
INDIAN RESERV.....	Indian Reservations
FUSRAP.....	Formerly Utilized Sites Remedial Action Program
UMTRA.....	Uranium Mill Tailings Sites
LEAD SMELTERS.....	Lead Smelter Sites
US AIRS.....	Aerometric Information Retrieval System Facility Subsystem
US MINES.....	Mines Master Index File
ABANDONED MINES.....	Abandoned Mines
FINDS.....	Facility Index System/Facility Registry System
ECHO.....	Enforcement & Compliance History Information
UXO.....	Unexploded Ordnance Sites
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN.....	Bond Expenditure Plan
Cortese.....	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings.....	CUPA Resources List
DRYCLEANERS.....	Cleaner Facilities
EMI.....	Emissions Inventory Data
ENF.....	Enforcement Action Listing
Financial Assurance.....	Financial Assurance Information Listing
HAZNET.....	Facility and Manifest Data
ICE.....	ICE
HIST CORTESE.....	Hazardous Waste & Substance Site List
HWP.....	EnviroStor Permitted Facilities Listing
HWT.....	Registered Hazardous Waste Transporter Database
MINES.....	Mines Site Location Listing
MWMP.....	Medical Waste Management Program Listing
NPDES.....	NPDES Permits Listing
PEST LIC.....	Pesticide Regulation Licenses Listing
PROC.....	Certified Processors Database
Notify 65.....	Proposition 65 Records
UIC.....	UIC Listing
UIC GEO.....	UIC GEO (GEOTRACKER)
WASTEWATER PITS.....	Oil Wastewater Pits Listing
WDS.....	Waste Discharge System
WIP.....	Well Investigation Program Case List
MILITARY PRIV SITES.....	MILITARY PRIV SITES (GEOTRACKER)
PROJECT.....	PROJECT (GEOTRACKER)
WDR.....	Waste Discharge Requirements Listing
CIWQS.....	California Integrated Water Quality System
CERS.....	CERS
NON-CASE INFO.....	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS.....	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS.....	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT.....	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ.....	Well Stimulation Project (GEOTRACKER)
MINES MRDS.....	Mineral Resources Data System
HWTS.....	Hazardous Waste Tracking System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR Hist Auto..... EDR Exclusive Historical Auto Stations
 EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
 RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 01/25/2021 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
MARCH AFB RIFLE RANG Facility Id: 80000313 Status: Inactive - Needs Evaluation		E 1/4 - 1/2 (0.270 mi.)	A2	9

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

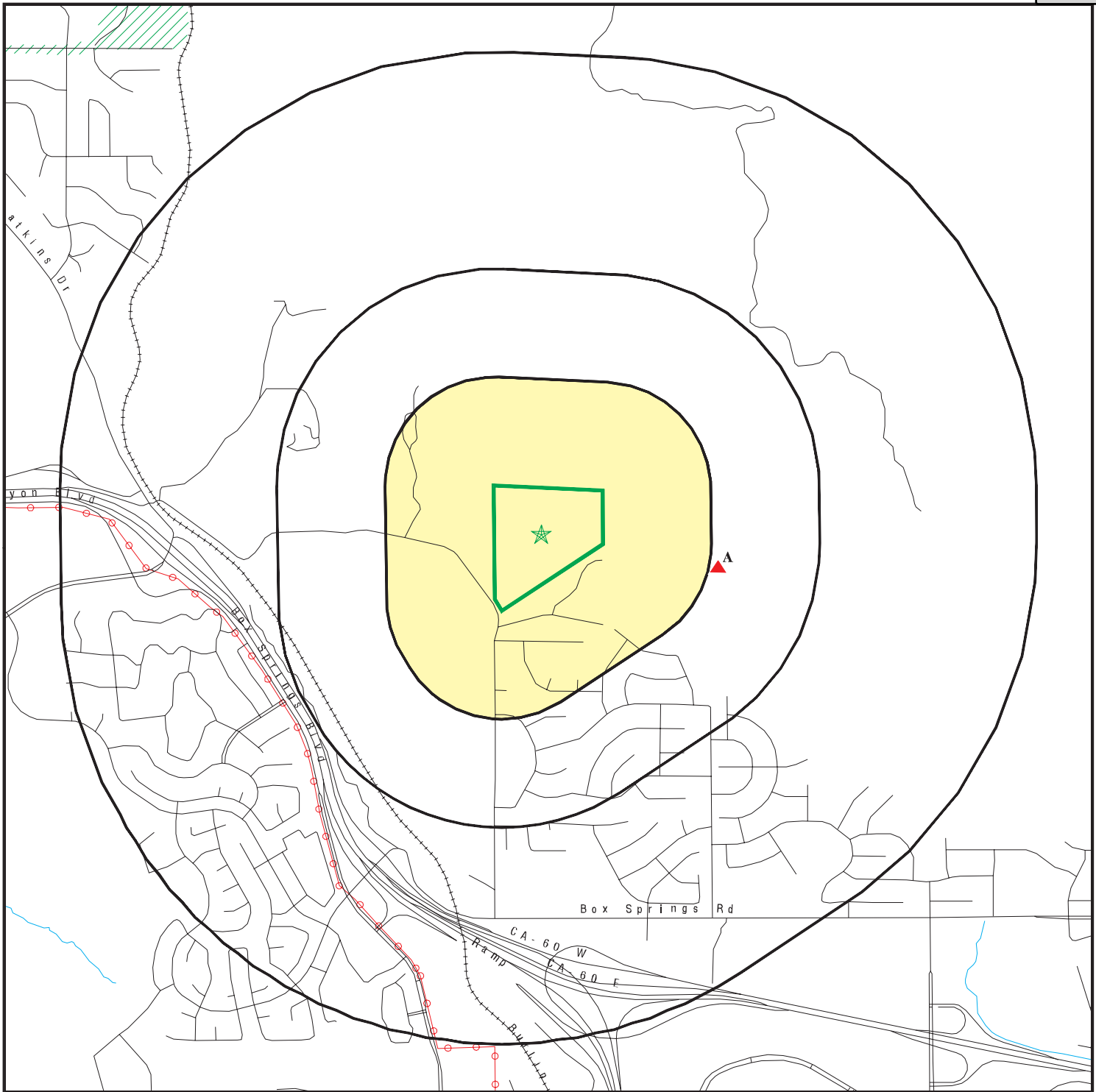
A review of the FUDS list, as provided by EDR, and dated 02/11/2021 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
MARCH AFB RIFLE RANG		E 1/4 - 1/2 (0.270 mi.)	A1	9












Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

EXECUTIVE SUMMARY

There were no unmapped sites in this report.



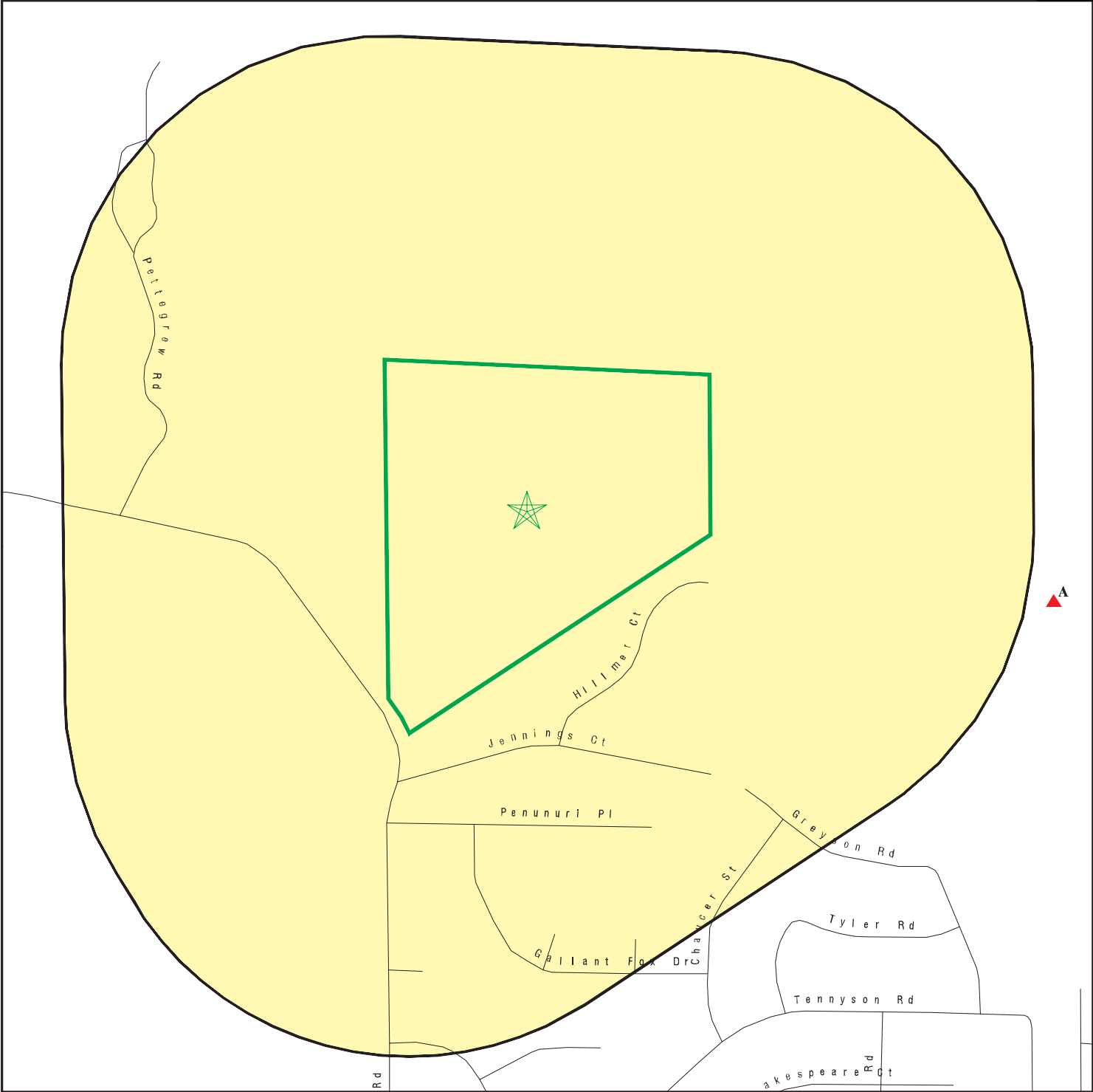
Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  National Priority List Sites
-  Dept. Defense Sites
-  Indian Reservations BIA
-  Power transmission lines
-  Special Flood Hazard Area (1%)
-  0.2% Annual Chance Flood Hazard
-  Areas of Concern








This report includes Interactive Map Layers display and/or hide map information. The legend includes only those icons for the default map view.





SITE NAME: Gateway Heights Residential Project
 ADDRESS: Not Reported
 Moreno Valley CA 92557
 LAT/LONG: 33.959359 / 117.294602

CLIENT: Psomas
 CONTACT: Sean Noonan
 INQUIRY #: 6541790.2s
 DATE: June 17, 2021 3:46 pm



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  Sensitive Receptors
-  National Priority List Sites
-  Dept. Defense Sites

-  Indian Reservations BIA
-  Special Flood Hazard Area (1%)
-  0.2% Annual Chance Flood Hazard
-  Areas of Concern



This report includes Interactive Map Layers display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Gateway Heights Residential Project ADDRESS: Not Reported Moreno Valley CA 92557 LAT/LONG: 33.959359 / 117.294602	CLIENT: Psomas CONTACT: Sean Noonan INQUIRY #: 6541790.2s DATE: June 17, 2021 3:50 pm
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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	0.001		0	NR	NR	NR	NR	0
<i>State- and tribal - equivalent NPL</i>								
RESPONSE	1.000		0	0	0	0	NR	0
<i>State- and tribal - equivalent CERCLIS</i>								
ENVIROSTOR	1.000		0	0	1	0	NR	1
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	1	0	NR	1
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
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NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Site

Database(s)

EDR ID Number
 EPA ID Number

A1 **MARCH AFB RIFLE RANGE**
East
1/4-1/2 **RIVERSIDE, CA**
0.270 mi.
1428 ft. **Site 1 of 2 in cluster A**

FUDS **1024903587**
N/A

Relative:
Higher
Actual:
2109 ft.

FUDS:
 EPA Region: 9
 Installation ID: CA99799F551400
 Congressional District Number: 41
 Name: MARCH AFB RIFLE RANGE
 FUDS Number: J09CA0476
 City: RIVERSIDE
 State: CA
 County: RIVERSIDE
 Object ID: 1800
 USACE Division: SPD
 USACE District: Los Angeles District (SPL)
 Status: Properties without projects
 Current Owner: Not reported
 EMS Map Link: <https://fudportal.usace.army.mil/ems/ems/inventory/map/map?id=53550>
 Eligibility: Ineligible
 Has Projects: No
 NPL Status: Not on the NPL
 Property History: Not reported

 Project Required: No
 Feature Description: Not reported
 X Coord: -117.28747559
 Y Coord: 33.958435059000003
 Latitude: 33.958333330000002
 Longitude: -117.28749999999999

A2 **MARCH AFB RIFLE RANGE**
East
1/4-1/2 **RIVERSIDE, CA**
0.270 mi.
1428 ft. **Site 2 of 2 in cluster A**

ENVIROSTOR **S107736670**
N/A

Relative:
Higher
Actual:
2109 ft.

ENVIROSTOR:
 Name: MARCH AFB RIFLE RANGE
 Address: Not reported
 City,State,Zip: RIVERSIDE, CA
 Facility ID: 80000313
 Status: Inactive - Needs Evaluation
 Status Date: 07/01/2005
 Site Code: Not reported
 Site Type: Military Evaluation
 Site Type Detailed: FUDS
 Acres: 0
 NPL: NO
 Regulatory Agencies: SMBRP
 Lead Agency: SMBRP
 Program Manager: Not reported
 Supervisor: Douglas Bautista
 Division Branch: Cleanup Cypress
 Assembly: 61
 Senate: 31
 Special Program: Not reported
 Restricted Use: NO

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Site

Database(s)

EDR ID Number
 EPA ID Number

MARCH AFB RIFLE RANGE (Continued)

S107736670

Site Mgmt Req: NONE SPECIFIED
 Funding: DERA
 Latitude: 33.95833
 Longitude: -117.2875
 APN: NONE SPECIFIED
 Past Use: NONE SPECIFIED
 Potential COC: Explosives (UXO, MEC)
 Confirmed COC: NONE SPECIFIED
 Potential Description: NONE SPECIFIED
 Alias Name: CA99799F551400
 Alias Type: Federal Facility ID
 Alias Name: J09CA0476
 Alias Type: INPR
 Alias Name: 80000313
 Alias Type: Envirostor ID Number

Completed Info:
 Completed Area Name: PROJECT WIDE
 Completed Sub Area Name: Not reported
 Completed Document Type: Inventory Project Report (INPR)
 Completed Date: 09/28/1992
 Comments: Not reported

Future Area Name: Not reported
 Future Sub Area Name: Not reported
 Future Document Type: Not reported
 Future Due Date: Not reported
 Schedule Area Name: Not reported
 Schedule Sub Area Name: Not reported
 Schedule Document Type: Not reported
 Schedule Due Date: Not reported
 Schedule Revised Date: Not reported

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
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NO SITES FOUND

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/27/2021	Source: EPA
Date Data Arrived at EDR: 05/03/2021	Telephone: N/A
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 06/04/2021
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/12/2021
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/27/2021	Source: EPA
Date Data Arrived at EDR: 05/03/2021	Telephone: N/A
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 06/04/2021
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/12/2021
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
 Date Data Arrived at EDR: 02/02/1994
 Date Made Active in Reports: 03/30/1994
 Number of Days to Update: 56

Source: EPA
 Telephone: 202-564-4267
 Last EDR Contact: 08/15/2011
 Next Scheduled EDR Contact: 11/28/2011
 Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/27/2021
 Date Data Arrived at EDR: 05/03/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 16

Source: EPA
 Telephone: N/A
 Last EDR Contact: 06/04/2021
 Next Scheduled EDR Contact: 07/12/2021
 Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
 Date Data Arrived at EDR: 04/05/2019
 Date Made Active in Reports: 05/14/2019
 Number of Days to Update: 39

Source: Environmental Protection Agency
 Telephone: 703-603-8704
 Last EDR Contact: 03/30/2021
 Next Scheduled EDR Contact: 07/12/2021
 Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/27/2021
 Date Data Arrived at EDR: 05/03/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 16

Source: EPA
 Telephone: 800-424-9346
 Last EDR Contact: 06/04/2021
 Next Scheduled EDR Contact: 07/26/2021
 Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 04/27/2021	Source: EPA
Date Data Arrived at EDR: 05/03/2021	Telephone: 800-424-9346
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 06/04/2021
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/26/2021
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/22/2021	Source: EPA
Date Data Arrived at EDR: 03/23/2021	Telephone: 800-424-9346
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 03/23/2021
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/22/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/23/2021	Telephone: (415) 495-8895
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 03/23/2021
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/22/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/23/2021	Telephone: (415) 495-8895
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 03/23/2021
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/22/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/23/2021	Telephone: (415) 495-8895
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 03/23/2021
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/22/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/23/2021	Telephone: (415) 495-8895
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 03/23/2021
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/09/2021	Source: Department of the Navy
Date Data Arrived at EDR: 02/11/2021	Telephone: 843-820-7326
Date Made Active in Reports: 03/22/2021	Last EDR Contact: 05/05/2021
Number of Days to Update: 39	Next Scheduled EDR Contact: 08/23/2021
	Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/22/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/23/2021	Telephone: 703-603-0695
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 05/21/2021
Number of Days to Update: 85	Next Scheduled EDR Contact: 09/06/2021
	Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/22/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/23/2021	Telephone: 703-603-0695
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 05/21/2021
Number of Days to Update: 85	Next Scheduled EDR Contact: 09/06/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/15/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 7

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/25/2021
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/13/2021
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/09/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/25/2021
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/13/2021
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2021
Next Scheduled EDR Contact: 08/09/2021
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/08/2021
Date Data Arrived at EDR: 02/09/2021
Date Made Active in Reports: 05/03/2021
Number of Days to Update: 83

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/11/2021
Next Scheduled EDR Contact: 08/23/2021
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: see region list
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004	Source: California Regional Water Quality Control Board Los Angeles Region (4)
Date Data Arrived at EDR: 09/07/2004	Telephone: 213-576-6710
Date Made Active in Reports: 10/12/2004	Last EDR Contact: 09/06/2011
Number of Days to Update: 35	Next Scheduled EDR Contact: 12/19/2011
	Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/19/2003	Telephone: 805-542-4786
Date Made Active in Reports: 06/02/2003	Last EDR Contact: 07/18/2011
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/31/2011
	Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004	Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Date Data Arrived at EDR: 10/20/2004	Telephone: 510-622-2433
Date Made Active in Reports: 11/19/2004	Last EDR Contact: 09/19/2011
Number of Days to Update: 30	Next Scheduled EDR Contact: 01/02/2012
	Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001	Source: California Regional Water Quality Control Board North Coast (1)
Date Data Arrived at EDR: 02/28/2001	Telephone: 707-570-3769
Date Made Active in Reports: 03/29/2001	Last EDR Contact: 08/01/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005	Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Date Data Arrived at EDR: 06/07/2005	Telephone: 760-241-7365
Date Made Active in Reports: 06/29/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/09/2003
 Date Data Arrived at EDR: 09/10/2003
 Date Made Active in Reports: 10/07/2003
 Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
 Telephone: 530-542-5572
 Last EDR Contact: 09/12/2011
 Next Scheduled EDR Contact: 12/26/2011
 Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
 Date Data Arrived at EDR: 02/26/2004
 Date Made Active in Reports: 03/24/2004
 Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
 Telephone: 760-776-8943
 Last EDR Contact: 08/01/2011
 Next Scheduled EDR Contact: 11/14/2011
 Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
 Date Data Arrived at EDR: 02/15/2005
 Date Made Active in Reports: 03/28/2005
 Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
 Telephone: 909-782-4496
 Last EDR Contact: 08/15/2011
 Next Scheduled EDR Contact: 11/28/2011
 Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
 Date Data Arrived at EDR: 04/23/2001
 Date Made Active in Reports: 05/21/2001
 Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
 Telephone: 858-637-5595
 Last EDR Contact: 09/26/2011
 Next Scheduled EDR Contact: 01/09/2012
 Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
 Date Data Arrived at EDR: 07/22/2008
 Date Made Active in Reports: 07/31/2008
 Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
 Telephone: 916-464-4834
 Last EDR Contact: 07/01/2011
 Next Scheduled EDR Contact: 10/17/2011
 Data Release Frequency: No Update Planned

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/12/2020
 Date Data Arrived at EDR: 12/16/2020
 Date Made Active in Reports: 03/12/2021
 Number of Days to Update: 86

Source: EPA Region 10
 Telephone: 206-553-2857
 Last EDR Contact: 06/11/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/07/2020
 Date Data Arrived at EDR: 12/16/2020
 Date Made Active in Reports: 03/12/2021
 Number of Days to Update: 86

Source: EPA, Region 5
 Telephone: 312-886-7439
 Last EDR Contact: 06/11/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/01/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/16/2020	Telephone: 415-972-3372
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/09/2020	Source: EPA Region 8
Date Data Arrived at EDR: 12/16/2020	Telephone: 303-312-6271
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/30/2020	Source: EPA Region 7
Date Data Arrived at EDR: 12/22/2020	Telephone: 913-551-7003
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/02/2020	Source: EPA Region 4
Date Data Arrived at EDR: 12/18/2020	Telephone: 404-562-8677
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 84	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2020	Source: EPA Region 1
Date Data Arrived at EDR: 12/16/2020	Telephone: 617-918-1313
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/08/2020	Source: EPA Region 6
Date Data Arrived at EDR: 05/20/2020	Telephone: 214-665-6597
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 06/11/2021
Number of Days to Update: 84	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
 Date Data Arrived at EDR: 04/07/2003
 Date Made Active in Reports: 04/25/2003
 Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
 Telephone: 707-576-2220
 Last EDR Contact: 08/01/2011
 Next Scheduled EDR Contact: 11/14/2011
 Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
 Date Data Arrived at EDR: 10/20/2004
 Date Made Active in Reports: 11/19/2004
 Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
 Telephone: 510-286-0457
 Last EDR Contact: 09/19/2011
 Next Scheduled EDR Contact: 01/02/2012
 Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
 Date Data Arrived at EDR: 05/18/2006
 Date Made Active in Reports: 06/15/2006
 Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
 Telephone: 805-549-3147
 Last EDR Contact: 07/18/2011
 Next Scheduled EDR Contact: 10/31/2011
 Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
 Date Data Arrived at EDR: 11/18/2004
 Date Made Active in Reports: 01/04/2005
 Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
 Telephone: 213-576-6600
 Last EDR Contact: 07/01/2011
 Next Scheduled EDR Contact: 10/17/2011
 Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
 Date Data Arrived at EDR: 04/05/2005
 Date Made Active in Reports: 04/21/2005
 Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
 Telephone: 916-464-3291
 Last EDR Contact: 09/12/2011
 Next Scheduled EDR Contact: 12/26/2011
 Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
 Date Data Arrived at EDR: 05/25/2005
 Date Made Active in Reports: 06/16/2005
 Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
 Telephone: 619-241-6583
 Last EDR Contact: 08/15/2011
 Next Scheduled EDR Contact: 11/28/2011
 Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
 Date Data Arrived at EDR: 09/07/2004
 Date Made Active in Reports: 10/12/2004
 Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
 Telephone: 530-542-5574
 Last EDR Contact: 08/15/2011
 Next Scheduled EDR Contact: 11/28/2011
 Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
 Date Data Arrived at EDR: 11/29/2004
 Date Made Active in Reports: 01/04/2005
 Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
 Telephone: 760-346-7491
 Last EDR Contact: 08/01/2011
 Next Scheduled EDR Contact: 11/14/2011
 Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
 Date Data Arrived at EDR: 04/03/2008
 Date Made Active in Reports: 04/14/2008
 Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
 Telephone: 951-782-3298
 Last EDR Contact: 09/12/2011
 Next Scheduled EDR Contact: 12/26/2011
 Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
 Date Data Arrived at EDR: 09/11/2007
 Date Made Active in Reports: 09/28/2007
 Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
 Telephone: 858-467-2980
 Last EDR Contact: 08/08/2011
 Next Scheduled EDR Contact: 11/21/2011
 Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/29/2021
 Date Data Arrived at EDR: 02/17/2021
 Date Made Active in Reports: 03/22/2021
 Number of Days to Update: 33

Source: FEMA
 Telephone: 202-646-5797
 Last EDR Contact: 04/05/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/08/2021
 Date Data Arrived at EDR: 03/09/2021
 Date Made Active in Reports: 03/31/2021
 Number of Days to Update: 22

Source: SWRCB
 Telephone: 916-341-5851
 Last EDR Contact: 06/03/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 03/05/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 916-327-7844
Date Made Active in Reports: 04/01/2021	Last EDR Contact: 06/04/2021
Number of Days to Update: 23	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2016	Telephone: 916-327-5092
Date Made Active in Reports: 09/19/2016	Last EDR Contact: 06/08/2021
Number of Days to Update: 69	Next Scheduled EDR Contact: 09/27/2021
	Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/09/2020	Source: EPA Region 8
Date Data Arrived at EDR: 12/16/2020	Telephone: 303-312-6137
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/02/2020	Source: EPA Region 4
Date Data Arrived at EDR: 12/18/2020	Telephone: 404-562-9424
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 84	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/12/2020	Source: EPA Region 10
Date Data Arrived at EDR: 12/16/2020	Telephone: 206-553-2857
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/08/2020	Source: EPA Region 6
Date Data Arrived at EDR: 05/20/2020	Telephone: 214-665-7591
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 06/11/2021
Number of Days to Update: 84	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2020	Source: EPA, Region 1
Date Data Arrived at EDR: 12/16/2020	Telephone: 617-918-1313
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/01/2020	Source: EPA Region 9
Date Data Arrived at EDR: 12/16/2020	Telephone: 415-972-3368
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/30/2020	Source: EPA Region 7
Date Data Arrived at EDR: 12/22/2020	Telephone: 913-551-7003
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/07/2020	Source: EPA Region 5
Date Data Arrived at EDR: 12/16/2020	Telephone: 312-886-6136
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 06/11/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 06/15/2021
Number of Days to Update: 142	Next Scheduled EDR Contact: 10/04/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/25/2021	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/26/2021	Telephone: 916-323-3400
Date Made Active in Reports: 04/13/2021	Last EDR Contact: 04/23/2021
Number of Days to Update: 77	Next Scheduled EDR Contact: 08/09/2021
	Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfields Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 03/22/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/23/2021	Telephone: 916-323-7905
Date Made Active in Reports: 06/10/2021	Last EDR Contact: 03/23/2021
Number of Days to Update: 79	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/15/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/16/2021	Telephone: 202-566-2777
Date Made Active in Reports: 06/10/2021	Last EDR Contact: 06/10/2021
Number of Days to Update: 86	Next Scheduled EDR Contact: 09/27/2021
	Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/01/2000
 Date Data Arrived at EDR: 04/10/2000
 Date Made Active in Reports: 05/10/2000
 Number of Days to Update: 30

Source: State Water Resources Control Board
 Telephone: 916-227-4448
 Last EDR Contact: 04/21/2021
 Next Scheduled EDR Contact: 08/09/2021
 Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 03/09/2021
 Date Data Arrived at EDR: 03/09/2021
 Date Made Active in Reports: 03/31/2021
 Number of Days to Update: 22

Source: Department of Conservation
 Telephone: 916-323-3836
 Last EDR Contact: 06/04/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 11/23/2020
 Date Data Arrived at EDR: 11/23/2020
 Date Made Active in Reports: 02/08/2021
 Number of Days to Update: 77

Source: Integrated Waste Management Board
 Telephone: 916-341-6422
 Last EDR Contact: 06/15/2021
 Next Scheduled EDR Contact: 08/23/2021
 Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
 Date Data Arrived at EDR: 12/03/2007
 Date Made Active in Reports: 01/24/2008
 Number of Days to Update: 52

Source: Environmental Protection Agency
 Telephone: 703-308-8245
 Last EDR Contact: 04/22/2021
 Next Scheduled EDR Contact: 08/09/2021
 Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
 Date Data Arrived at EDR: 08/09/2004
 Date Made Active in Reports: 09/17/2004
 Number of Days to Update: 39

Source: Environmental Protection Agency
 Telephone: 800-424-9346
 Last EDR Contact: 06/09/2004
 Next Scheduled EDR Contact: N/A
 Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
 Date Data Arrived at EDR: 05/07/2009
 Date Made Active in Reports: 09/21/2009
 Number of Days to Update: 137

Source: EPA, Region 9
 Telephone: 415-947-4219
 Last EDR Contact: 04/14/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
 Date Data Arrived at EDR: 08/06/2014
 Date Made Active in Reports: 01/29/2015
 Number of Days to Update: 176

Source: Department of Health & Human Services, Indian Health Service
 Telephone: 301-443-1452
 Last EDR Contact: 04/29/2021
 Next Scheduled EDR Contact: 08/09/2021
 Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 12/07/2020	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 12/09/2020	Telephone: 202-307-1000
Date Made Active in Reports: 03/02/2021	Last EDR Contact: 05/22/2021
Number of Days to Update: 83	Next Scheduled EDR Contact: 09/06/2021
	Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 08/03/2006	Telephone: 916-323-3400
Date Made Active in Reports: 08/24/2006	Last EDR Contact: 02/23/2009
Number of Days to Update: 21	Next Scheduled EDR Contact: 05/25/2009
	Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/25/2021	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/26/2021	Telephone: 916-323-3400
Date Made Active in Reports: 04/13/2021	Last EDR Contact: 04/23/2021
Number of Days to Update: 77	Next Scheduled EDR Contact: 08/09/2021
	Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2019	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/20/2021	Telephone: 916-255-6504
Date Made Active in Reports: 04/08/2021	Last EDR Contact: 04/14/2021
Number of Days to Update: 78	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/20/2021	Source: CalEPA
Date Data Arrived at EDR: 01/20/2021	Telephone: 916-323-2514
Date Made Active in Reports: 04/08/2021	Last EDR Contact: 04/20/2021
Number of Days to Update: 78	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/1995
 Date Data Arrived at EDR: 08/30/1995
 Date Made Active in Reports: 09/26/1995
 Number of Days to Update: 27

Source: State Water Resources Control Board
 Telephone: 916-227-4364
 Last EDR Contact: 01/26/2009
 Next Scheduled EDR Contact: 04/27/2009
 Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/07/2020
 Date Data Arrived at EDR: 12/09/2020
 Date Made Active in Reports: 03/02/2021
 Number of Days to Update: 83

Source: Drug Enforcement Administration
 Telephone: 202-307-1000
 Last EDR Contact: 05/18/2021
 Next Scheduled EDR Contact: 09/06/2021
 Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 02/24/2021
 Date Data Arrived at EDR: 02/24/2021
 Date Made Active in Reports: 05/14/2021
 Number of Days to Update: 79

Source: State Water Resources Control Board
 Telephone: 866-480-1028
 Last EDR Contact: 06/04/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
 Date Data Arrived at EDR: 07/07/2005
 Date Made Active in Reports: 08/11/2005
 Number of Days to Update: 35

Source: State Water Resources Control Board
 Telephone: N/A
 Last EDR Contact: 06/03/2005
 Next Scheduled EDR Contact: N/A
 Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
 Date Data Arrived at EDR: 01/25/1991
 Date Made Active in Reports: 02/12/1991
 Number of Days to Update: 18

Source: State Water Resources Control Board
 Telephone: 916-341-5851
 Last EDR Contact: 07/26/2001
 Next Scheduled EDR Contact: N/A
 Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 02/11/2021
 Date Data Arrived at EDR: 02/11/2021
 Date Made Active in Reports: 05/05/2021
 Number of Days to Update: 83

Source: San Francisco County Department of Public Health
 Telephone: 415-252-3896
 Last EDR Contact: 04/27/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 01/20/2021	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 01/20/2021	Telephone: 916-323-2514
Date Made Active in Reports: 04/08/2021	Last EDR Contact: 04/20/2021
Number of Days to Update: 78	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 09/05/1995	Telephone: 916-341-5851
Date Made Active in Reports: 09/29/1995	Last EDR Contact: 12/28/1998
Number of Days to Update: 24	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 03/01/2021	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 03/03/2021	Telephone: 916-323-3400
Date Made Active in Reports: 05/20/2021	Last EDR Contact: 05/25/2021
Number of Days to Update: 78	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 04/27/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/03/2021	Telephone: 202-564-6023
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 06/04/2021
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/12/2021
	Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/02/2021	Source: DTSC and SWRCB
Date Data Arrived at EDR: 03/03/2021	Telephone: 916-323-3400
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 05/28/2021
Number of Days to Update: 77	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/16/2020	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 12/17/2020	Telephone: 202-366-4555
Date Made Active in Reports: 03/12/2021	Last EDR Contact: 03/24/2021
Number of Days to Update: 85	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2020	Source: Office of Emergency Services
Date Data Arrived at EDR: 01/20/2021	Telephone: 916-845-8400
Date Made Active in Reports: 04/08/2021	Last EDR Contact: 04/20/2021
Number of Days to Update: 78	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/08/2021	Source: State Water Quality Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/31/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 22	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/31/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 22	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/22/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 50	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/22/2021
 Date Data Arrived at EDR: 03/23/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 57

Source: Environmental Protection Agency
 Telephone: (415) 495-8895
 Last EDR Contact: 03/23/2021
 Next Scheduled EDR Contact: 07/05/2021
 Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 02/11/2021
 Date Data Arrived at EDR: 02/17/2021
 Date Made Active in Reports: 04/05/2021
 Number of Days to Update: 47

Source: U.S. Army Corps of Engineers
 Telephone: 202-528-4285
 Last EDR Contact: 05/18/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
 Date Data Arrived at EDR: 11/10/2006
 Date Made Active in Reports: 01/11/2007
 Number of Days to Update: 62

Source: USGS
 Telephone: 888-275-8747
 Last EDR Contact: 04/16/2021
 Next Scheduled EDR Contact: 07/26/2021
 Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
 Date Data Arrived at EDR: 04/11/2018
 Date Made Active in Reports: 11/06/2019
 Number of Days to Update: 574

Source: U.S. Geological Survey
 Telephone: 888-275-8747
 Last EDR Contact: 04/05/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
 Date Data Arrived at EDR: 02/03/2017
 Date Made Active in Reports: 04/07/2017
 Number of Days to Update: 63

Source: Environmental Protection Agency
 Telephone: 615-532-8599
 Last EDR Contact: 05/18/2021
 Next Scheduled EDR Contact: 08/23/2021
 Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/14/2020
 Date Data Arrived at EDR: 12/17/2020
 Date Made Active in Reports: 03/12/2021
 Number of Days to Update: 85

Source: Environmental Protection Agency
 Telephone: 202-566-1917
 Last EDR Contact: 03/23/2021
 Next Scheduled EDR Contact: 07/05/2021
 Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/21/2014	Telephone: 617-520-3000
Date Made Active in Reports: 06/17/2014	Last EDR Contact: 04/30/2021
Number of Days to Update: 88	Next Scheduled EDR Contact: 08/16/2021
	Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/08/2018	Telephone: 703-308-4044
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 05/07/2021
Number of Days to Update: 73	Next Scheduled EDR Contact: 08/16/2021
	Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016	Source: EPA
Date Data Arrived at EDR: 06/17/2020	Telephone: 202-260-5521
Date Made Active in Reports: 09/10/2020	Last EDR Contact: 03/19/2021
Number of Days to Update: 85	Next Scheduled EDR Contact: 06/28/2021
	Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018	Source: EPA
Date Data Arrived at EDR: 08/14/2020	Telephone: 202-566-0250
Date Made Active in Reports: 11/04/2020	Last EDR Contact: 05/17/2021
Number of Days to Update: 82	Next Scheduled EDR Contact: 08/30/2021
	Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/20/2021	Source: EPA
Date Data Arrived at EDR: 01/21/2021	Telephone: 202-564-4203
Date Made Active in Reports: 03/22/2021	Last EDR Contact: 04/20/2021
Number of Days to Update: 60	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/27/2021	Source: EPA
Date Data Arrived at EDR: 05/03/2021	Telephone: 703-416-0223
Date Made Active in Reports: 05/19/2021	Last EDR Contact: 06/04/2021
Number of Days to Update: 16	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 01/22/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/18/2021	Telephone: 202-564-8600
Date Made Active in Reports: 05/11/2021	Last EDR Contact: 04/19/2021
Number of Days to Update: 82	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 12/30/2020	Source: EPA
Date Data Arrived at EDR: 01/14/2021	Telephone: 202-564-6023
Date Made Active in Reports: 03/05/2021	Last EDR Contact: 06/04/2021
Number of Days to Update: 50	Next Scheduled EDR Contact: 08/16/2021
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/19/2020	Source: EPA
Date Data Arrived at EDR: 01/08/2021	Telephone: 202-566-0500
Date Made Active in Reports: 03/22/2021	Last EDR Contact: 04/09/2021
Number of Days to Update: 73	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 03/31/2021
Number of Days to Update: 79	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/08/2021	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 03/11/2021	Telephone: 301-415-7169
Date Made Active in Reports: 05/11/2021	Last EDR Contact: 04/16/2021
Number of Days to Update: 61	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2019	Source: Department of Energy
Date Data Arrived at EDR: 12/01/2020	Telephone: 202-586-8719
Date Made Active in Reports: 02/09/2021	Last EDR Contact: 05/27/2021
Number of Days to Update: 70	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/05/2019	Telephone: N/A
Date Made Active in Reports: 11/11/2019	Last EDR Contact: 05/27/2021
Number of Days to Update: 251	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/06/2019	Telephone: 202-566-0517
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 05/07/2021
Number of Days to Update: 96	Next Scheduled EDR Contact: 08/16/2021
	Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/01/2019	Telephone: 202-343-9775
Date Made Active in Reports: 09/23/2019	Last EDR Contact: 03/25/2021
Number of Days to Update: 84	Next Scheduled EDR Contact: 07/12/2021
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 01/28/2020	Telephone: 202-366-4595
Date Made Active in Reports: 04/17/2020	Last EDR Contact: 04/27/2021
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/09/2021
	Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2020
 Date Data Arrived at EDR: 01/13/2021
 Date Made Active in Reports: 03/22/2021
 Number of Days to Update: 68

Source: Department of Justice, Consent Decree Library
 Telephone: Varies
 Last EDR Contact: 04/05/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2017
 Date Data Arrived at EDR: 06/22/2020
 Date Made Active in Reports: 11/20/2020
 Number of Days to Update: 151

Source: EPA/NTIS
 Telephone: 800-424-9346
 Last EDR Contact: 03/23/2021
 Next Scheduled EDR Contact: 07/05/2021
 Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
 Date Data Arrived at EDR: 07/14/2015
 Date Made Active in Reports: 01/10/2017
 Number of Days to Update: 546

Source: USGS
 Telephone: 202-208-3710
 Last EDR Contact: 04/06/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
 Date Data Arrived at EDR: 09/11/2018
 Date Made Active in Reports: 09/14/2018
 Number of Days to Update: 3

Source: Department of Energy
 Telephone: 202-586-3559
 Last EDR Contact: 04/28/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
 Date Data Arrived at EDR: 11/15/2019
 Date Made Active in Reports: 01/28/2020
 Number of Days to Update: 74

Source: Department of Energy
 Telephone: 505-845-0011
 Last EDR Contact: 05/21/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 04/27/2021
 Date Data Arrived at EDR: 05/03/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 16

Source: Environmental Protection Agency
 Telephone: 703-603-8787
 Last EDR Contact: 06/04/2021
 Next Scheduled EDR Contact: 07/12/2021
 Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/05/2001
 Date Data Arrived at EDR: 10/27/2010
 Date Made Active in Reports: 12/02/2010
 Number of Days to Update: 36

Source: American Journal of Public Health
 Telephone: 703-305-6451
 Last EDR Contact: 12/02/2009
 Next Scheduled EDR Contact: N/A
 Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
 Date Data Arrived at EDR: 10/26/2016
 Date Made Active in Reports: 02/03/2017
 Number of Days to Update: 100

Source: EPA
 Telephone: 202-564-2496
 Last EDR Contact: 09/26/2017
 Next Scheduled EDR Contact: 01/08/2018
 Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
 Date Data Arrived at EDR: 10/26/2016
 Date Made Active in Reports: 02/03/2017
 Number of Days to Update: 100

Source: EPA
 Telephone: 202-564-2496
 Last EDR Contact: 09/26/2017
 Next Scheduled EDR Contact: 01/08/2018
 Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/01/2021
 Date Data Arrived at EDR: 02/24/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
 Telephone: 303-231-5959
 Last EDR Contact: 05/25/2021
 Next Scheduled EDR Contact: 09/06/2021
 Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 05/27/2021
 Date Data Arrived at EDR: 05/27/2021
 Date Made Active in Reports: 06/10/2021
 Number of Days to Update: 14

Source: DOL, Mine Safety & Health Admi
 Telephone: 202-693-9424
 Last EDR Contact: 05/26/2021
 Next Scheduled EDR Contact: 09/13/2021
 Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
 Date Data Arrived at EDR: 05/27/2020
 Date Made Active in Reports: 08/13/2020
 Number of Days to Update: 78

Source: USGS
 Telephone: 703-648-7709
 Last EDR Contact: 05/27/2021
 Next Scheduled EDR Contact: 09/06/2021
 Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011	Source: USGS
Date Data Arrived at EDR: 06/08/2011	Telephone: 703-648-7709
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 05/27/2021
Number of Days to Update: 97	Next Scheduled EDR Contact: 09/06/2021
	Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/11/2020	Source: Department of Interior
Date Data Arrived at EDR: 12/11/2020	Telephone: 202-208-2609
Date Made Active in Reports: 03/02/2021	Last EDR Contact: 06/14/2021
Number of Days to Update: 81	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/03/2021	Source: EPA
Date Data Arrived at EDR: 03/03/2021	Telephone: (415) 947-8000
Date Made Active in Reports: 04/05/2021	Last EDR Contact: 05/18/2021
Number of Days to Update: 33	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2018	Source: Department of Defense
Date Data Arrived at EDR: 07/02/2020	Telephone: 703-704-1564
Date Made Active in Reports: 09/17/2020	Last EDR Contact: 04/13/2021
Number of Days to Update: 77	Next Scheduled EDR Contact: 07/26/2021
	Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/02/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/08/2021	Telephone: 202-564-2280
Date Made Active in Reports: 03/22/2021	Last EDR Contact: 04/06/2021
Number of Days to Update: 73	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/03/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/17/2020	Telephone: 202-564-0527
Date Made Active in Reports: 02/09/2021	Last EDR Contact: 05/21/2021
Number of Days to Update: 84	Next Scheduled EDR Contact: 09/06/2021
	Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/17/2021	Source: EPA
Date Data Arrived at EDR: 02/17/2021	Telephone: 800-385-6164
Date Made Active in Reports: 03/22/2021	Last EDR Contact: 05/14/2021
Number of Days to Update: 33	Next Scheduled EDR Contact: 08/30/2021
	Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/22/2021	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 03/23/2021	Telephone: 916-323-3400
Date Made Active in Reports: 06/10/2021	Last EDR Contact: 03/23/2021
Number of Days to Update: 79	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019	Source: Livermore-Pleasanton Fire Department
Date Data Arrived at EDR: 05/14/2019	Telephone: 925-454-2361
Date Made Active in Reports: 07/17/2019	Last EDR Contact: 05/14/2021
Number of Days to Update: 64	Next Scheduled EDR Contact: 08/23/2021
	Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 03/01/2021	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 03/04/2021	Telephone: 916-327-4498
Date Made Active in Reports: 05/20/2021	Last EDR Contact: 05/25/2021
Number of Days to Update: 77	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Annually

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/26/2021
 Date Data Arrived at EDR: 03/02/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 78

Source: Antelope Valley Air Quality Management District
 Telephone: 661-723-8070
 Last EDR Contact: 05/25/2021
 Next Scheduled EDR Contact: 09/13/2021
 Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
 A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 02/23/2021
 Date Data Arrived at EDR: 02/25/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 83

Source: South Coast Air Quality Management District
 Telephone: 909-396-3211
 Last EDR Contact: 05/18/2021
 Next Scheduled EDR Contact: 09/06/2021
 Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2018
 Date Data Arrived at EDR: 06/16/2020
 Date Made Active in Reports: 08/28/2020
 Number of Days to Update: 73

Source: California Air Resources Board
 Telephone: 916-322-2990
 Last EDR Contact: 06/10/2021
 Next Scheduled EDR Contact: 09/27/2021
 Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 12/31/2020
 Date Data Arrived at EDR: 01/20/2021
 Date Made Active in Reports: 04/09/2021
 Number of Days to Update: 79

Source: State Water Resources Control Board
 Telephone: 916-445-9379
 Last EDR Contact: 04/20/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/25/2021
 Date Data Arrived at EDR: 01/26/2021
 Date Made Active in Reports: 04/13/2021
 Number of Days to Update: 77

Source: Department of Toxic Substances Control
 Telephone: 916-255-3628
 Last EDR Contact: 04/14/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/08/2021
 Date Data Arrived at EDR: 02/12/2021
 Date Made Active in Reports: 05/05/2021
 Number of Days to Update: 82

Source: California Integrated Waste Management Board
 Telephone: 916-341-6066
 Last EDR Contact: 05/05/2021
 Next Scheduled EDR Contact: 08/23/2021
 Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2019
 Date Data Arrived at EDR: 04/15/2020
 Date Made Active in Reports: 07/02/2020
 Number of Days to Update: 78

Source: California Environmental Protection Agency
 Telephone: 916-255-1136
 Last EDR Contact: 04/09/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/16/2021
 Date Data Arrived at EDR: 02/17/2021
 Date Made Active in Reports: 05/07/2021
 Number of Days to Update: 79

Source: Department of Toxic Substances Control
 Telephone: 877-786-9427
 Last EDR Contact: 05/14/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
 Date Data Arrived at EDR: 01/22/2009
 Date Made Active in Reports: 04/08/2009
 Number of Days to Update: 76

Source: Department of Toxic Substances Control
 Telephone: 916-323-3400
 Last EDR Contact: 01/22/2009
 Next Scheduled EDR Contact: N/A
 Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/16/2021
 Date Data Arrived at EDR: 02/17/2021
 Date Made Active in Reports: 05/10/2021
 Number of Days to Update: 82

Source: Department of Toxic Substances Control
 Telephone: 916-323-3400
 Last EDR Contact: 05/14/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/05/2021
 Date Data Arrived at EDR: 01/05/2021
 Date Made Active in Reports: 03/18/2021
 Number of Days to Update: 72

Source: Department of Toxic Substances Control
 Telephone: 916-440-7145
 Last EDR Contact: 04/06/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 03/08/2021
 Date Data Arrived at EDR: 03/09/2021
 Date Made Active in Reports: 03/30/2021
 Number of Days to Update: 21

Source: Department of Conservation
 Telephone: 916-322-1080
 Last EDR Contact: 06/03/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/29/2021
 Date Data Arrived at EDR: 03/03/2021
 Date Made Active in Reports: 05/20/2021
 Number of Days to Update: 78

Source: Department of Public Health
 Telephone: 916-558-1784
 Last EDR Contact: 05/28/2021
 Next Scheduled EDR Contact: 09/13/2021
 Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 02/08/2021
 Date Data Arrived at EDR: 02/09/2021
 Date Made Active in Reports: 05/04/2021
 Number of Days to Update: 84

Source: State Water Resources Control Board
 Telephone: 916-445-9379
 Last EDR Contact: 05/11/2021
 Next Scheduled EDR Contact: 08/23/2021
 Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 03/02/2021
 Date Data Arrived at EDR: 03/03/2021
 Date Made Active in Reports: 05/20/2021
 Number of Days to Update: 78

Source: Department of Pesticide Regulation
 Telephone: 916-445-4038
 Last EDR Contact: 05/28/2021
 Next Scheduled EDR Contact: 09/13/2021
 Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/09/2021
 Date Data Arrived at EDR: 03/09/2021
 Date Made Active in Reports: 03/31/2021
 Number of Days to Update: 22

Source: Department of Conservation
 Telephone: 916-323-3836
 Last EDR Contact: 06/04/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/12/2021
 Date Data Arrived at EDR: 03/16/2021
 Date Made Active in Reports: 06/01/2021
 Number of Days to Update: 77

Source: State Water Resources Control Board
 Telephone: 916-445-3846
 Last EDR Contact: 06/08/2021
 Next Scheduled EDR Contact: 09/27/2021
 Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 03/08/2021
 Date Data Arrived at EDR: 03/09/2021
 Date Made Active in Reports: 03/31/2021
 Number of Days to Update: 22

Source: Department of Conservation
 Telephone: 916-445-2408
 Last EDR Contact: 06/03/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)

Underground control injection sites

Date of Government Version: 03/08/2021
 Date Data Arrived at EDR: 03/09/2021
 Date Made Active in Reports: 03/30/2021
 Number of Days to Update: 21

Source: State Water Resource Control Board
 Telephone: 866-480-1028
 Last EDR Contact: 06/03/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 11/19/2019	Source: RWQCB, Central Valley Region
Date Data Arrived at EDR: 01/07/2020	Telephone: 559-445-5577
Date Made Active in Reports: 03/09/2020	Last EDR Contact: 04/09/2021
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/20/2007	Telephone: 916-341-5227
Date Made Active in Reports: 06/29/2007	Last EDR Contact: 05/14/2021
Number of Days to Update: 9	Next Scheduled EDR Contact: 08/30/2021
	Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009	Source: Los Angeles Water Quality Control Board
Date Data Arrived at EDR: 07/21/2009	Telephone: 213-576-6726
Date Made Active in Reports: 08/03/2009	Last EDR Contact: 06/15/2021
Number of Days to Update: 13	Next Scheduled EDR Contact: 10/04/2021
	Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)

Projects sites

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 03/09/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 916-341-5810
Date Made Active in Reports: 03/31/2021	Last EDR Contact: 06/07/2021
Number of Days to Update: 22	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 11/30/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 12/01/2020	Telephone: 866-794-4977
Date Made Active in Reports: 02/12/2021	Last EDR Contact: 05/19/2021
Number of Days to Update: 73	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/20/2021	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 01/20/2021	Telephone: 916-323-2514
Date Made Active in Reports: 04/08/2021	Last EDR Contact: 04/20/2021
Number of Days to Update: 78	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 03/08/2021	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/09/2021	Telephone: 866-480-1028
Date Made Active in Reports: 03/30/2021	Last EDR Contact: 06/03/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011	Source: EPA, Office of Water
Date Data Arrived at EDR: 08/05/2011	Telephone: 202-564-2496
Date Made Active in Reports: 09/29/2011	Last EDR Contact: 03/31/2021
Number of Days to Update: 55	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014	Source: EPA
Date Data Arrived at EDR: 01/06/2015	Telephone: 202-564-2496
Date Made Active in Reports: 05/06/2015	Last EDR Contact: 03/31/2021
Number of Days to Update: 120	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014	Source: EPA
Date Data Arrived at EDR: 02/05/2015	Telephone: 202-564-2497
Date Made Active in Reports: 03/06/2015	Last EDR Contact: 03/31/2021
Number of Days to Update: 29	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 04/06/2018	Source: USGS
Date Data Arrived at EDR: 10/21/2019	Telephone: 703-648-6533
Date Made Active in Reports: 10/24/2019	Last EDR Contact: 05/27/2021
Number of Days to Update: 3	Next Scheduled EDR Contact: 09/06/2021
	Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/08/2021	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/09/2021	Telephone: 916-324-2444
Date Made Active in Reports: 04/20/2021	Last EDR Contact: 04/05/2021
Number of Days to Update: 11	Next Scheduled EDR Contact: 07/19/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
 Date Data Arrived at EDR: 07/01/2013
 Date Made Active in Reports: 01/13/2014
 Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
 Telephone: N/A
 Last EDR Contact: 06/01/2012
 Next Scheduled EDR Contact: N/A
 Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
 Date Data Arrived at EDR: 07/01/2013
 Date Made Active in Reports: 12/30/2013
 Number of Days to Update: 182

Source: State Water Resources Control Board
 Telephone: N/A
 Last EDR Contact: 06/01/2012
 Next Scheduled EDR Contact: N/A
 Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
 Date Data Arrived at EDR: 01/11/2019
 Date Made Active in Reports: 03/05/2019
 Number of Days to Update: 53

Source: Alameda County Environmental Health Services
 Telephone: 510-567-6700
 Last EDR Contact: 03/31/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 03/17/2021
 Date Data Arrived at EDR: 03/18/2021
 Date Made Active in Reports: 03/25/2021
 Number of Days to Update: 7

Source: Alameda County Environmental Health Services
 Telephone: 510-567-6700
 Last EDR Contact: 03/17/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List

Cupa Facility List

Date of Government Version: 02/02/2021
 Date Data Arrived at EDR: 02/04/2021
 Date Made Active in Reports: 04/23/2021
 Number of Days to Update: 78

Source: Amador County Environmental Health
 Telephone: 209-223-6439
 Last EDR Contact: 05/25/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing

Cupa facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/21/2017
 Date Data Arrived at EDR: 04/25/2017
 Date Made Active in Reports: 08/09/2017
 Number of Days to Update: 106

Source: Public Health Department
 Telephone: 530-538-7149
 Last EDR Contact: 03/31/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing Cupa Facility Listing

Date of Government Version: 12/15/2020
 Date Data Arrived at EDR: 12/16/2020
 Date Made Active in Reports: 12/24/2020
 Number of Days to Update: 8

Source: Calveras County Environmental Health
 Telephone: 209-754-6399
 Last EDR Contact: 06/15/2021
 Next Scheduled EDR Contact: 10/04/2021
 Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List Cupa facility list.

Date of Government Version: 04/06/2020
 Date Data Arrived at EDR: 04/23/2020
 Date Made Active in Reports: 07/10/2020
 Number of Days to Update: 78

Source: Health & Human Services
 Telephone: 530-458-0396
 Last EDR Contact: 04/27/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 01/25/2021
 Date Data Arrived at EDR: 01/26/2021
 Date Made Active in Reports: 04/16/2021
 Number of Days to Update: 80

Source: Contra Costa Health Services Department
 Telephone: 925-646-2286
 Last EDR Contact: 04/20/2021
 Next Scheduled EDR Contact: 08/09/2021
 Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List Cupa Facility list

Date of Government Version: 12/17/2020
 Date Data Arrived at EDR: 01/28/2021
 Date Made Active in Reports: 04/16/2021
 Number of Days to Update: 78

Source: Del Norte County Environmental Health Division
 Telephone: 707-465-0426
 Last EDR Contact: 04/21/2021
 Next Scheduled EDR Contact: 08/09/2021
 Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List CUPA facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/09/2021
 Date Data Arrived at EDR: 02/11/2021
 Date Made Active in Reports: 05/05/2021
 Number of Days to Update: 83

Source: El Dorado County Environmental Management Department
 Telephone: 530-621-6623
 Last EDR Contact: 05/05/2021
 Next Scheduled EDR Contact: 08/09/2021
 Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 01/14/2021
 Date Data Arrived at EDR: 01/15/2021
 Date Made Active in Reports: 04/05/2021
 Number of Days to Update: 80

Source: Dept. of Community Health
 Telephone: 559-445-3271
 Last EDR Contact: 04/01/2021
 Next Scheduled EDR Contact: 07/12/2021
 Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List

Cupa facility list

Date of Government Version: 01/22/2018
 Date Data Arrived at EDR: 01/24/2018
 Date Made Active in Reports: 03/14/2018
 Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
 Telephone: 830-934-6500
 Last EDR Contact: 04/14/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List

CUPA facility list.

Date of Government Version: 05/17/2021
 Date Data Arrived at EDR: 05/18/2021
 Date Made Active in Reports: 05/20/2021
 Number of Days to Update: 2

Source: Humboldt County Environmental Health
 Telephone: N/A
 Last EDR Contact: 05/10/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List

Cupa facility list.

Date of Government Version: 01/19/2021
 Date Data Arrived at EDR: 01/20/2021
 Date Made Active in Reports: 04/08/2021
 Number of Days to Update: 78

Source: San Diego Border Field Office
 Telephone: 760-339-2777
 Last EDR Contact: 04/14/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA INYO: CUPA Facility List Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 77

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/11/2021
Next Scheduled EDR Contact: 08/30/2021
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List

A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 10/29/2020
Date Data Arrived at EDR: 10/30/2020
Date Made Active in Reports: 01/15/2021
Number of Days to Update: 77

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 04/27/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 01/19/2021
Date Data Arrived at EDR: 01/21/2021
Date Made Active in Reports: 01/28/2021
Number of Days to Update: 7

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/25/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/25/2021
Next Scheduled EDR Contact: 08/30/2021
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List Cupa facility list

Date of Government Version: 02/10/2021
Date Data Arrived at EDR: 02/12/2021
Date Made Active in Reports: 03/11/2021
Number of Days to Update: 27

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/07/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Varies

LASSEN COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA LASSEN: CUPA Facility List Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 06/04/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 06/08/2021
Next Scheduled EDR Contact: 09/27/2021
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/11/2021
Date Data Arrived at EDR: 01/12/2021
Date Made Active in Reports: 03/25/2021
Number of Days to Update: 72

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/05/2021
Next Scheduled EDR Contact: 07/19/2021
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/11/2021
Date Data Arrived at EDR: 01/12/2021
Date Made Active in Reports: 03/26/2021
Number of Days to Update: 73

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/13/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2021
Date Data Arrived at EDR: 02/18/2021
Date Made Active in Reports: 05/10/2021
Number of Days to Update: 81

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/07/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory

A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/26/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 02/04/2021	Source: Los Angeles County Department of Public Works
Date Data Arrived at EDR: 04/16/2021	Telephone: 626-458-6973
Date Made Active in Reports: 04/21/2021	Last EDR Contact: 04/16/2021
Number of Days to Update: 5	Next Scheduled EDR Contact: 07/26/2021
	Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019	Source: Los Angeles Fire Department
Date Data Arrived at EDR: 06/25/2019	Telephone: 213-978-3800
Date Made Active in Reports: 08/22/2019	Last EDR Contact: 03/26/2021
Number of Days to Update: 58	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019	Source: Los Angeles Fire Department
Date Data Arrived at EDR: 06/25/2019	Telephone: 213-978-3800
Date Made Active in Reports: 08/22/2019	Last EDR Contact: 03/26/2021
Number of Days to Update: 58	Next Scheduled EDR Contact: 07/05/2021
	Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 10/19/2020	Source: Community Health Services
Date Data Arrived at EDR: 01/12/2021	Telephone: 323-890-7806
Date Made Active in Reports: 03/26/2021	Last EDR Contact: 04/16/2021
Number of Days to Update: 73	Next Scheduled EDR Contact: 07/26/2021
	Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 04/19/2017	Telephone: 310-524-2236
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 04/07/2021
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/26/2021
	Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 04/23/2019	Telephone: 562-570-2563
Date Made Active in Reports: 06/27/2019	Last EDR Contact: 04/14/2021
Number of Days to Update: 65	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 09/11/2020	Source: City of Torrance Fire Department
Date Data Arrived at EDR: 10/07/2020	Telephone: 310-618-2973
Date Made Active in Reports: 12/23/2020	Last EDR Contact: 04/23/2021
Number of Days to Update: 77	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020	Source: Madera County Environmental Health
Date Data Arrived at EDR: 08/12/2020	Telephone: 559-675-7823
Date Made Active in Reports: 10/23/2020	Last EDR Contact: 05/12/2021
Number of Days to Update: 72	Next Scheduled EDR Contact: 08/30/2021
	Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018	Source: Public Works Department Waste Management
Date Data Arrived at EDR: 10/04/2018	Telephone: 415-473-6647
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 03/25/2021
Number of Days to Update: 29	Next Scheduled EDR Contact: 07/12/2021
	Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/21/2020	Source: Department of Public Health
Date Data Arrived at EDR: 12/21/2020	Telephone: 707-463-4466
Date Made Active in Reports: 03/10/2021	Last EDR Contact: 05/18/2021
Number of Days to Update: 79	Next Scheduled EDR Contact: 09/06/2021
	Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/04/2021	Source: Merced County Environmental Health
Date Data Arrived at EDR: 02/09/2021	Telephone: 209-381-1094
Date Made Active in Reports: 02/18/2021	Last EDR Contact: 05/12/2021
Number of Days to Update: 9	Next Scheduled EDR Contact: 08/30/2021
	Data Release Frequency: Varies

MONO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA MONO: CUPA Facility List CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 06/02/2021
Next Scheduled EDR Contact: 09/06/3021
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing CUPA Program listing from the Environmental Health Division.

Date of Government Version: 01/08/2021
Date Data Arrived at EDR: 01/12/2021
Date Made Active in Reports: 03/25/2021
Number of Days to Update: 78

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 03/25/2021
Next Scheduled EDR Contact: 07/12/2021
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/18/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/18/2021
Next Scheduled EDR Contact: 09/06/2021
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List CUPA facility list.

Date of Government Version: 02/03/2021
Date Data Arrived at EDR: 02/04/2021
Date Made Active in Reports: 04/23/2021
Number of Days to Update: 78

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 04/21/2021
Next Scheduled EDR Contact: 08/09/2021
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups Petroleum and non-petroleum spills.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/01/2021	Source: Health Care Agency
Date Data Arrived at EDR: 02/04/2021	Telephone: 714-834-3446
Date Made Active in Reports: 04/23/2021	Last EDR Contact: 04/29/2021
Number of Days to Update: 78	Next Scheduled EDR Contact: 08/16/2021
	Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 03/01/2021	Source: Health Care Agency
Date Data Arrived at EDR: 05/03/2021	Telephone: 714-834-3446
Date Made Active in Reports: 05/12/2021	Last EDR Contact: 04/29/2021
Number of Days to Update: 9	Next Scheduled EDR Contact: 08/16/2021
	Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/01/2021	Source: Health Care Agency
Date Data Arrived at EDR: 02/02/2021	Telephone: 714-834-3446
Date Made Active in Reports: 04/20/2021	Last EDR Contact: 04/30/2021
Number of Days to Update: 77	Next Scheduled EDR Contact: 08/16/2021
	Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 05/25/2021	Source: Placer County Health and Human Services
Date Data Arrived at EDR: 05/26/2021	Telephone: 530-745-2363
Date Made Active in Reports: 06/01/2021	Last EDR Contact: 05/25/2021
Number of Days to Update: 6	Next Scheduled EDR Contact: 09/13/2021
	Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List

Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019	Source: Plumas County Environmental Health
Date Data Arrived at EDR: 04/23/2019	Telephone: 530-283-6355
Date Made Active in Reports: 06/26/2019	Last EDR Contact: 04/14/2021
Number of Days to Update: 64	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/13/2021	Source: Department of Environmental Health
Date Data Arrived at EDR: 01/14/2021	Telephone: 951-358-5055
Date Made Active in Reports: 03/10/2021	Last EDR Contact: 06/08/2021
Number of Days to Update: 55	Next Scheduled EDR Contact: 09/27/2021
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST RIVERSIDE: Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 01/13/2021
 Date Data Arrived at EDR: 01/14/2021
 Date Made Active in Reports: 03/10/2021
 Number of Days to Update: 55

Source: Department of Environmental Health
 Telephone: 951-358-5055
 Last EDR Contact: 06/07/2021
 Next Scheduled EDR Contact: 09/26/2021
 Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/18/2020
 Date Data Arrived at EDR: 03/31/2020
 Date Made Active in Reports: 06/15/2020
 Number of Days to Update: 76

Source: Sacramento County Environmental Management
 Telephone: 916-875-8406
 Last EDR Contact: 03/31/2021
 Next Scheduled EDR Contact: 07/12/2021
 Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/24/2020
 Date Data Arrived at EDR: 03/31/2020
 Date Made Active in Reports: 06/17/2020
 Number of Days to Update: 78

Source: Sacramento County Environmental Management
 Telephone: 916-875-8406
 Last EDR Contact: 04/01/2021
 Next Scheduled EDR Contact: 07/12/2021
 Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 04/28/2021
 Date Data Arrived at EDR: 04/29/2021
 Date Made Active in Reports: 05/03/2021
 Number of Days to Update: 4

Source: San Benito County Environmental Health
 Telephone: N/A
 Last EDR Contact: 04/27/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/19/2021
 Date Data Arrived at EDR: 05/19/2021
 Date Made Active in Reports: 06/07/2021
 Number of Days to Update: 19

Source: San Bernardino County Fire Department Hazardous Materials Division
 Telephone: 909-387-3041
 Last EDR Contact: 05/03/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 03/02/2021
Date Data Arrived at EDR: 03/03/2021
Date Made Active in Reports: 05/21/2021
Number of Days to Update: 79

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 05/28/2021
Next Scheduled EDR Contact: 09/13/2021
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 11/23/2020
Date Made Active in Reports: 02/08/2021
Number of Days to Update: 77

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 05/21/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/14/2021
Next Scheduled EDR Contact: 08/02/2021
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 05/25/2021
Next Scheduled EDR Contact: 09/13/2021
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 02/11/2021
Date Made Active in Reports: 05/05/2021
Number of Days to Update: 83

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 04/27/2021
Next Scheduled EDR Contact: 08/16/2021
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/19/2008
 Date Data Arrived at EDR: 09/19/2008
 Date Made Active in Reports: 09/29/2008
 Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
 Telephone: 415-252-3920
 Last EDR Contact: 04/27/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 02/11/2021
 Date Data Arrived at EDR: 02/11/2021
 Date Made Active in Reports: 05/05/2021
 Number of Days to Update: 83

Source: Department of Public Health
 Telephone: 415-252-3920
 Last EDR Contact: 04/27/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
 Date Data Arrived at EDR: 06/26/2018
 Date Made Active in Reports: 07/11/2018
 Number of Days to Update: 15

Source: Environmental Health Department
 Telephone: N/A
 Last EDR Contact: 06/08/2021
 Next Scheduled EDR Contact: 09/27/2021
 Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List

Cupa Facility List.

Date of Government Version: 05/07/2021
 Date Data Arrived at EDR: 05/11/2021
 Date Made Active in Reports: 05/14/2021
 Number of Days to Update: 3

Source: San Luis Obispo County Public Health Department
 Telephone: 805-781-5596
 Last EDR Contact: 05/06/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
 Date Data Arrived at EDR: 02/20/2020
 Date Made Active in Reports: 04/24/2020
 Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
 Telephone: 650-363-1921
 Last EDR Contact: 06/10/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
 Date Data Arrived at EDR: 03/29/2019
 Date Made Active in Reports: 05/29/2019
 Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
 Telephone: 650-363-1921
 Last EDR Contact: 06/02/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA SANTA BARBARA: CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
 Date Data Arrived at EDR: 09/09/2011
 Date Made Active in Reports: 10/07/2011
 Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
 Telephone: 805-686-8167
 Last EDR Contact: 05/12/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List

Cupa facility list

Date of Government Version: 02/24/2021
 Date Data Arrived at EDR: 02/26/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 28

Source: Department of Environmental Health
 Telephone: 408-918-1973
 Last EDR Contact: 05/12/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
 Date Data Arrived at EDR: 03/30/2005
 Date Made Active in Reports: 04/21/2005
 Number of Days to Update: 22

Source: Santa Clara Valley Water District
 Telephone: 408-265-2600
 Last EDR Contact: 03/23/2009
 Next Scheduled EDR Contact: 06/22/2009
 Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
 Date Data Arrived at EDR: 03/05/2014
 Date Made Active in Reports: 03/18/2014
 Number of Days to Update: 13

Source: Department of Environmental Health
 Telephone: 408-918-3417
 Last EDR Contact: 05/18/2021
 Next Scheduled EDR Contact: 09/06/2021
 Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
 Date Data Arrived at EDR: 11/05/2020
 Date Made Active in Reports: 01/26/2021
 Number of Days to Update: 82

Source: City of San Jose Fire Department
 Telephone: 408-535-7694
 Last EDR Contact: 05/21/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List

CUPA facility listing.

Date of Government Version: 01/21/2017
 Date Data Arrived at EDR: 02/22/2017
 Date Made Active in Reports: 05/23/2017
 Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
 Telephone: 831-464-2761
 Last EDR Contact: 05/12/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Varies

SHASTA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA SHASTA: CUPA Facility List Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/12/2021
Next Scheduled EDR Contact: 08/30/2021
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/25/2021
Next Scheduled EDR Contact: 09/13/2021
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 03/23/2021
Date Data Arrived at EDR: 03/25/2021
Date Made Active in Reports: 06/10/2021
Number of Days to Update: 77

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/08/2021
Next Scheduled EDR Contact: 09/12/2021
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List Cupa Facility list

Date of Government Version: 12/15/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 7

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/15/2021
Next Scheduled EDR Contact: 10/04/2021
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/05/2021
Date Data Arrived at EDR: 01/06/2021
Date Made Active in Reports: 03/18/2021
Number of Days to Update: 71

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/15/2021
Next Scheduled EDR Contact: 10/04/2021
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List Cupa facility list

Date of Government Version: 02/09/2021
Date Data Arrived at EDR: 02/11/2021
Date Made Active in Reports: 05/05/2021
Number of Days to Update: 83

Source: Stanislaus County Department of Environmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/21/2021
Next Scheduled EDR Contact: 07/26/2021
Data Release Frequency: Varies

SUTTER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST SUTTER: Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 03/01/2021
 Date Data Arrived at EDR: 03/02/2021
 Date Made Active in Reports: 05/19/2021
 Number of Days to Update: 78

Source: Sutter County Environmental Health Services
 Telephone: 530-822-7500
 Last EDR Contact: 05/25/2021
 Next Scheduled EDR Contact: 09/13/2021
 Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List Cupa facilities

Date of Government Version: 01/13/2021
 Date Data Arrived at EDR: 01/14/2021
 Date Made Active in Reports: 04/06/2021
 Number of Days to Update: 82

Source: Tehama County Department of Environmental Health
 Telephone: 530-527-8020
 Last EDR Contact: 04/27/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List Cupa facility list

Date of Government Version: 01/19/2021
 Date Data Arrived at EDR: 01/20/2021
 Date Made Active in Reports: 04/08/2021
 Number of Days to Update: 78

Source: Department of Toxic Substances Control
 Telephone: 760-352-0381
 Last EDR Contact: 04/14/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List Cupa program facilities

Date of Government Version: 02/02/2021
 Date Data Arrived at EDR: 02/04/2021
 Date Made Active in Reports: 04/23/2021
 Number of Days to Update: 78

Source: Tulare County Environmental Health Services Division
 Telephone: 559-624-7400
 Last EDR Contact: 04/27/2021
 Next Scheduled EDR Contact: 08/16/2021
 Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List Cupa facility list

Date of Government Version: 04/23/2018
 Date Data Arrived at EDR: 04/25/2018
 Date Made Active in Reports: 06/25/2018
 Number of Days to Update: 61

Source: Divison of Environmental Health
 Telephone: 209-533-5633
 Last EDR Contact: 04/14/2021
 Next Scheduled EDR Contact: 08/02/2021
 Data Release Frequency: Varies

VENTURA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/28/2020	Source: Ventura County Environmental Health Division
Date Data Arrived at EDR: 01/29/2021	Telephone: 805-654-2813
Date Made Active in Reports: 04/22/2021	Last EDR Contact: 04/19/2021
Number of Days to Update: 83	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011	Source: Environmental Health Division
Date Data Arrived at EDR: 12/01/2011	Telephone: 805-654-2813
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 03/25/2021
Number of Days to Update: 49	Next Scheduled EDR Contact: 07/12/2021
	Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008	Source: Environmental Health Division
Date Data Arrived at EDR: 06/24/2008	Telephone: 805-654-2813
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 05/05/2021
Number of Days to Update: 37	Next Scheduled EDR Contact: 08/23/2021
	Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/29/2021	Source: Ventura County Resource Management Agency
Date Data Arrived at EDR: 04/21/2021	Telephone: 805-654-2813
Date Made Active in Reports: 04/23/2021	Last EDR Contact: 04/19/2021
Number of Days to Update: 2	Next Scheduled EDR Contact: 08/02/2021
	Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/01/2021	Source: Environmental Health Division
Date Data Arrived at EDR: 03/09/2021	Telephone: 805-654-2813
Date Made Active in Reports: 03/31/2021	Last EDR Contact: 06/04/2021
Number of Days to Update: 22	Next Scheduled EDR Contact: 09/20/2021
	Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 12/21/2020	Source: Yolo County Department of Health
Date Data Arrived at EDR: 12/23/2020	Telephone: 530-666-8646
Date Made Active in Reports: 01/04/2021	Last EDR Contact: 03/26/2021
Number of Days to Update: 12	Next Scheduled EDR Contact: 07/12/2021
	Data Release Frequency: Annually

YUBA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA YUBA: CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 04/21/2021
 Date Data Arrived at EDR: 04/22/2021
 Date Made Active in Reports: 05/12/2021
 Number of Days to Update: 20

Source: Yuba County Environmental Health Department
 Telephone: 530-749-7523
 Last EDR Contact: 04/24/2021
 Next Scheduled EDR Contact: 08/09/2021
 Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 10/05/2020
 Date Data Arrived at EDR: 02/17/2021
 Date Made Active in Reports: 05/10/2021
 Number of Days to Update: 82

Source: Department of Energy & Environmental Protection
 Telephone: 860-424-3375
 Last EDR Contact: 05/11/2021
 Next Scheduled EDR Contact: 08/23/2021
 Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2018
 Date Data Arrived at EDR: 04/10/2019
 Date Made Active in Reports: 05/16/2019
 Number of Days to Update: 36

Source: Department of Environmental Protection
 Telephone: N/A
 Last EDR Contact: 04/09/2021
 Next Scheduled EDR Contact: 07/19/2021
 Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
 Date Data Arrived at EDR: 04/29/2020
 Date Made Active in Reports: 07/10/2020
 Number of Days to Update: 72

Source: Department of Environmental Conservation
 Telephone: 518-402-8651
 Last EDR Contact: 04/30/2021
 Next Scheduled EDR Contact: 08/09/2021
 Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
 Date Data Arrived at EDR: 07/19/2019
 Date Made Active in Reports: 09/10/2019
 Number of Days to Update: 53

Source: Department of Environmental Protection
 Telephone: 717-783-8990
 Last EDR Contact: 04/09/2021
 Next Scheduled EDR Contact: 07/26/2021
 Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2019
 Date Data Arrived at EDR: 02/11/2021
 Date Made Active in Reports: 02/24/2021
 Number of Days to Update: 13

Source: Department of Environmental Management
 Telephone: 401-222-2797
 Last EDR Contact: 05/13/2021
 Next Scheduled EDR Contact: 08/30/2021
 Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
 Date Data Arrived at EDR: 06/19/2019
 Date Made Active in Reports: 09/03/2019
 Number of Days to Update: 76

Source: Department of Natural Resources
 Telephone: N/A
 Last EDR Contact: 06/03/2021
 Next Scheduled EDR Contact: 09/20/2021
 Data Release Frequency: Annually

Oil/Gas Pipelines

Source: Endeavor Business Media

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
 Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
 Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health
 Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics
 Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics
 Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities

Source: Department of Social Services
 Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA
 Telephone: 877-336-2627
 Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM**TARGET PROPERTY ADDRESS**

GATEWAY HEIGHTS RESIDENTIAL PROJECT
NOT REPORTED
MORENO VALLEY, CA 92557

TARGET PROPERTY COORDINATES

Latitude (North): 33.959359 - 33° 57' 33.69"
Longitude (West): 117.294602 - 117° 17' 40.57"
Universal Transverse Mercator: Zone 11
UTM X (Meters): 472780.5
UTM Y (Meters): 3757494.5
Elevation: 1680 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map: 5641312 RIVERSIDE EAST, CA
Version Date: 2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

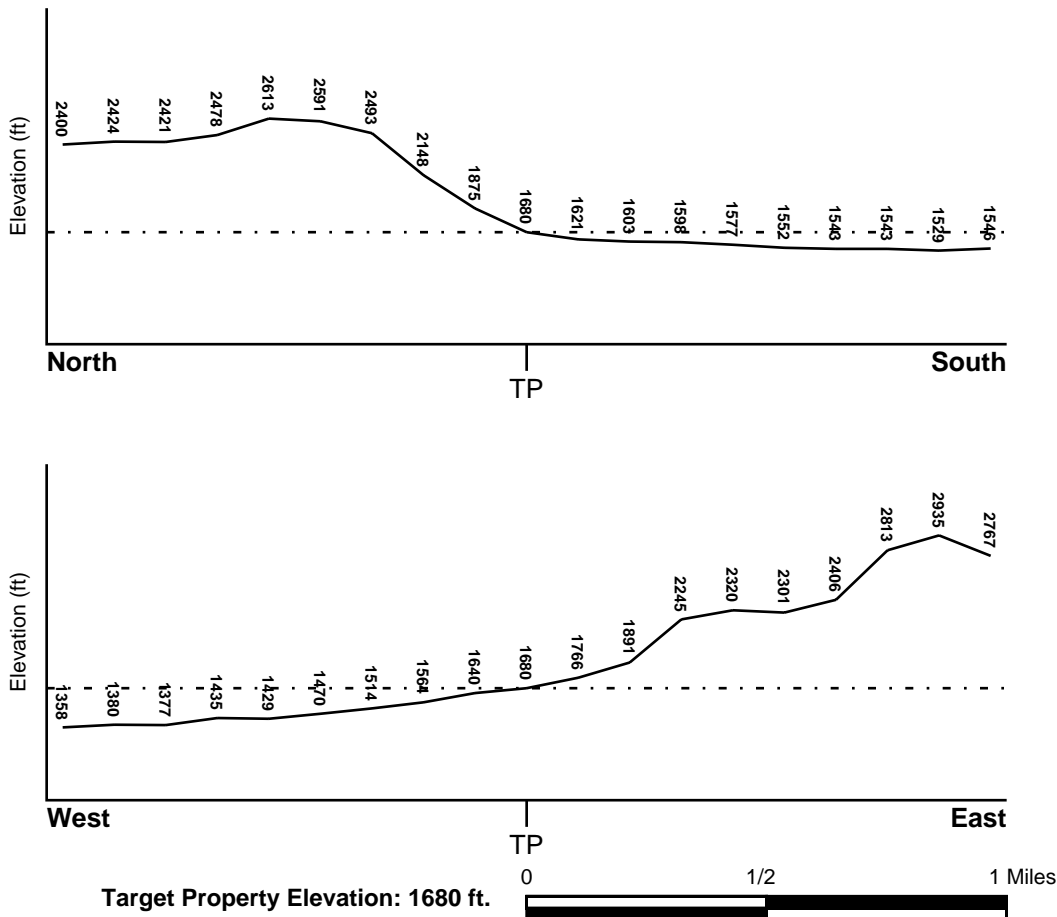
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
0650740005A	FEMA Q3 Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
06065C0731G	FEMA FIRM Flood data
0602450735A	FEMA Q3 Flood data
0602600020A	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
A12	1/2 - 1 Mile SSW	Not Reported
1G	1/2 - 1 Mile SSW	Not Reported

For additional site information, refer to Physical Setting Source Map Findings.

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

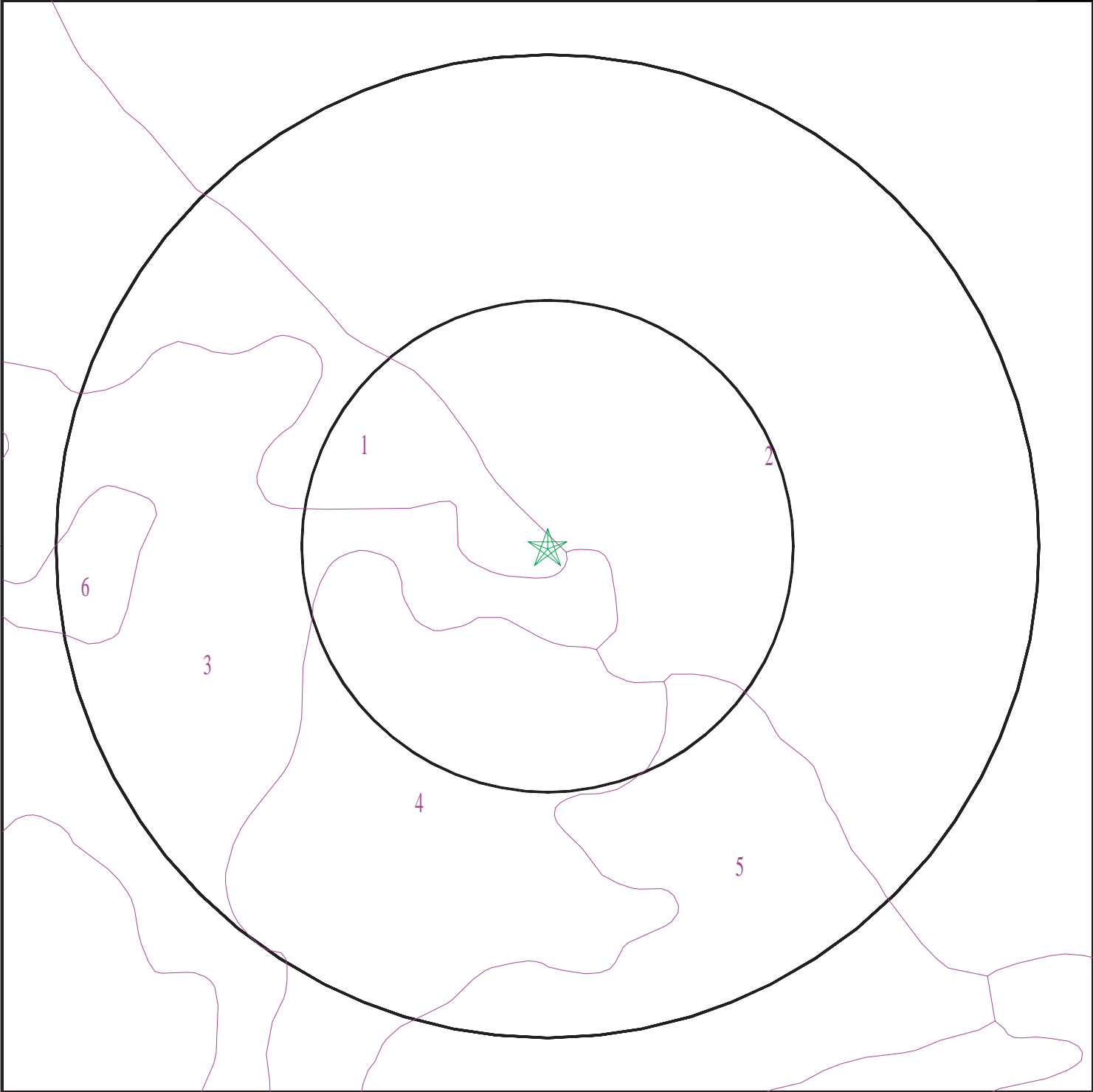
ROCK STRATIGRAPHIC UNIT

Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg <i>(decoded above as Era, System & Series)</i>

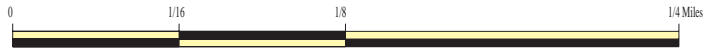
GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

SITE NAME: Gateway Heights Residential Project
 ADDRESS: Not Reported
 Moreno Valley CA 92557
 LAT/LONG: 33.959359 / 117.294602

CLIENT: Psomas
 CONTACT: Sean Noonan
 INQUIRY #: 6541790.2s
 DATE: June 17, 2021 3:51 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Cieneba

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	14 inches	22 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 2

Soil Component Name: ROCKLAND

Soil Surface Texture: unweathered bedrock

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class:

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	59 inches	unweathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: CIENEBA

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	14 inches	22 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 4

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
3	27 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 5

Soil Component Name: FALLBROOK

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	5 inches	18 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	18 inches	22 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 6

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

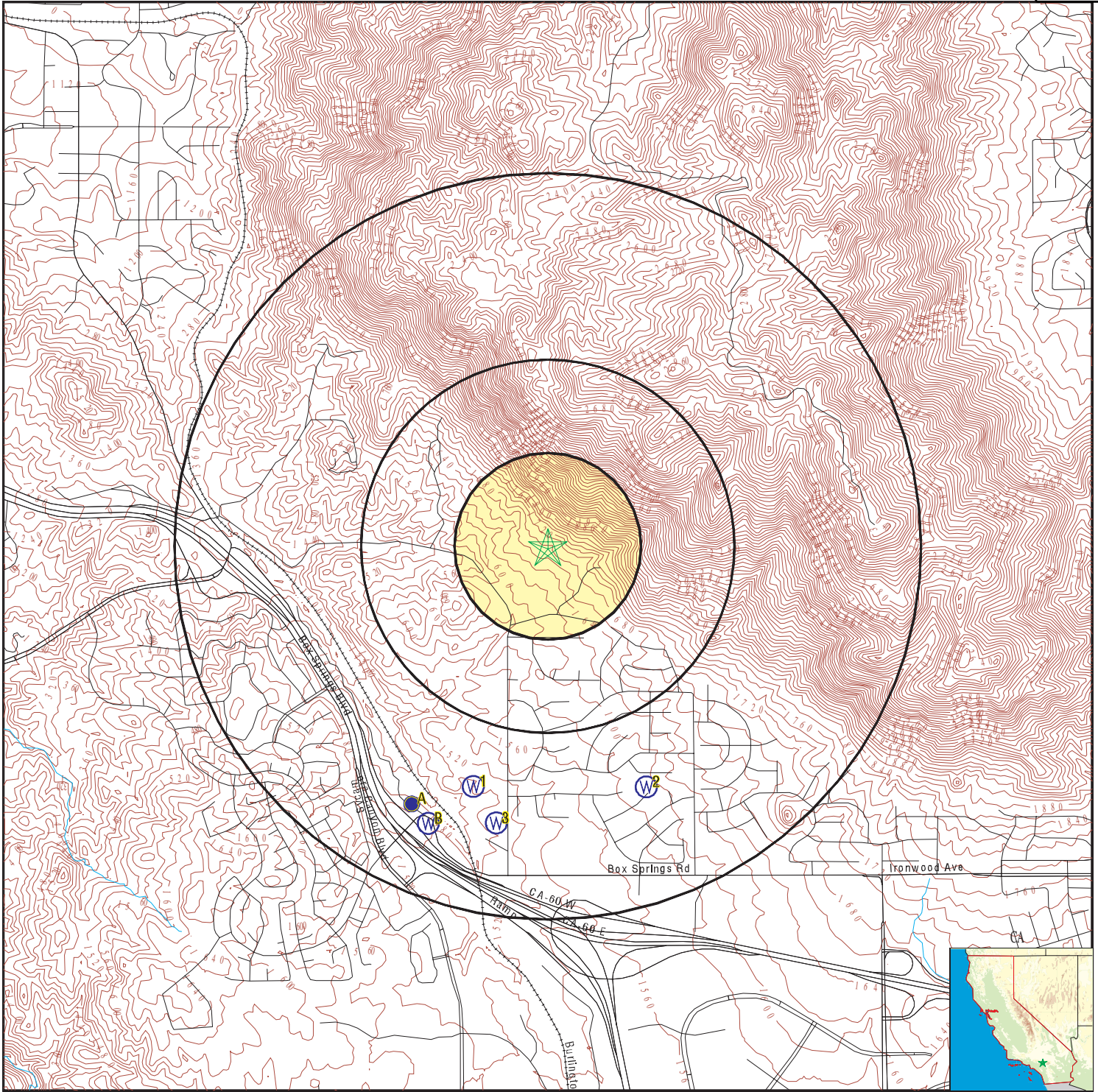
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	2462	1/2 - 1 Mile SSW
2	CADDW0000011940	1/2 - 1 Mile SSE
3	CADWR0000022168	1/2 - 1 Mile South
A4	CAEDF0000076199	1/2 - 1 Mile SSW
A5	CAEDF0000077278	1/2 - 1 Mile SSW
A6	CAEDF0000098441	1/2 - 1 Mile SSW
B7	CAEDF0000070472	1/2 - 1 Mile SSW
A8	CAEDF0000010312	1/2 - 1 Mile SSW
A9	CAEDF0000022883	1/2 - 1 Mile SSW
B10	CAEDF0000004686	1/2 - 1 Mile SSW
B11	CAEDF0000014192	1/2 - 1 Mile SSW
B13	CAEDF0000123281	1/2 - 1 Mile SSW
B14	CAEDF0000045914	1/2 - 1 Mile SSW
B15	CAEDF0000001717	1/2 - 1 Mile SSW
B16	CAEDF0000059545	1/2 - 1 Mile SSW
B17	CAEDF0000048095	1/2 - 1 Mile SSW
B18	CAEDF0000059972	1/2 - 1 Mile SSW
B19	CAEDF0000021016	1/2 - 1 Mile SSW
B20	CAEDF0000046543	1/2 - 1 Mile SSW
B21	CAEDF0000079557	1/2 - 1 Mile SSW
B22	CAEDF0000116487	1/2 - 1 Mile SSW
B23	CAEDF0000142393	1/2 - 1 Mile SSW
B24	CAEDF0000042577	1/2 - 1 Mile SSW

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)



Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: Gateway Heights Residential Project
 ADDRESS: Not Reported
 Moreno Valley CA 92557
 LAT/LONG: 33.959359 / 117.294602

CLIENT: Psomas
 CONTACT: Sean Noonan
 INQUIRY #: 6541790.2s
 DATE: June 17, 2021 3:51 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Database EDR ID Number

1
SSW
1/2 - 1 Mile
Lower

CA WELLS 2462

Seq:	2462	Prim sta c:	02S/04W-33R04 S
Frds no:	3301053001	County:	33
District:	63	User id:	33C
System no:	3301053	Water type:	G
Source nam:	WELL 01	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	335700.0	Longitude:	1171750.0
Precision:	3	Status:	AR
Comment 1:	20860 BOX SPRINGS CANYON RD RIVERSIDE		
Comment 2:	Not Reported	Comment 3:	Not Reported
Comment 4:	Not Reported	Comment 5:	Not Reported
Comment 6:	Not Reported	Comment 7:	Not Reported
System no:	3301053	System nam:	Box Springs Canyon Apts
Hqname:	Not Reported	Address:	Not Reported
City:	Not Reported	State:	Not Reported
Zip:	Not Reported	Zip ext:	Not Reported
Pop serv:	0	Connection:	0
Area serve:	Not Reported		

2
SSE
1/2 - 1 Mile
Lower

CA WELLS CADDW0000011940

Well ID:	3301053-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 01	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&date=&global_id=&assigned_name=3301053-001&store_num=		
GeoTracker Data:	Not Reported		

3
South
1/2 - 1 Mile
Lower

CA WELLS CADWR0000022168

Well ID:	02S04W33R002S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	02S04W33R002S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&date=&global_id=&assigned_name=02S04W33R002S&store_num=		
GeoTracker Data:	Not Reported		

A4
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000076199

Well ID:	T0606548431-MW-14	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-14

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

GAMA PFAS Testing: Not Reported
 Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-14&store_num=
 GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-14

**A5
SSW
1/2 - 1 Mile
Lower**

CA WELLS CAEDF0000077278

Well ID: T0606548431-MW-15 Well Type: MONITORING
 Source: EDF Other Name: MW-15
 GAMA PFAS Testing: Not Reported
 Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-15&store_num=
 GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-15

**A6
SSW
1/2 - 1 Mile
Lower**

CA WELLS CAEDF0000098441

Well ID: T0606548431-MW-13 Well Type: MONITORING
 Source: EDF Other Name: MW-13
 GAMA PFAS Testing: Not Reported
 Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-13&store_num=
 GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-13

**B7
SSW
1/2 - 1 Mile
Lower**

CA WELLS CAEDF0000070472

Well ID: T0606548431-MW-5 Well Type: MONITORING
 Source: EDF Other Name: MW-5
 GAMA PFAS Testing: Not Reported
 Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-5&store_num=
 GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-5

**A8
SSW
1/2 - 1 Mile
Lower**

CA WELLS CAEDF0000010312

Well ID: T0606548431-MW-16 Well Type: MONITORING
 Source: EDF Other Name: MW-16
 GAMA PFAS Testing: Not Reported
 Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-16&store_num=

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-16

A9
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000022883

Well ID: T0606548431-MW-12 Well Type: MONITORING
 Source: EDF Other Name: MW-12
 GAMA PFAS Testing: Not Reported
 Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-12&store_num=
 GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-12

B10
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000004686

Well ID: T0606548431-MW-4 Well Type: MONITORING
 Source: EDF Other Name: MW-4
 GAMA PFAS Testing: Not Reported
 Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-4&store_num=
 GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-4

B11
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000014192

Well ID: T0606548431-MW-6 Well Type: MONITORING
 Source: EDF Other Name: MW-6
 GAMA PFAS Testing: Not Reported
 Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-6&store_num=
 GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-6

A12
SSW
1/2 - 1 Mile
Lower

Site ID:	083302855T	AQUIFLOW	50782
Groundwater Flow:	Not Reported		
Shallow Water Depth:	Not Reported		
Deep Water Depth:	Not Reported		
Average Water Depth:	40		
Date:	04/1997		

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

B13
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000123281

Well ID: T0606548431-MW-3 Well Type: MONITORING
Source: EDF Other Name: MW-3
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-3&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-3

B14
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000045914

Well ID: T0606548431-MW-9 Well Type: MONITORING
Source: EDF Other Name: MW-9
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-9&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-9

B15
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000001717

Well ID: T0606548431-MW-11 Well Type: MONITORING
Source: EDF Other Name: MW-11
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-11&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-11

B16
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000059545

Well ID: T0606548431-MW-8 Well Type: MONITORING
Source: EDF Other Name: MW-8
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-8&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-8

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

B17
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000048095

Well ID: T0606548431-MW-7 Well Type: MONITORING
Source: EDF Other Name: MW-7
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-7&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-7

B18
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000059972

Well ID: T0606548431-MW-2 Well Type: MONITORING
Source: EDF Other Name: MW-2
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-2&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-2

B19
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000021016

Well ID: T0606548431-MW-10 Well Type: MONITORING
Source: EDF Other Name: MW-10
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-10&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-10

B20
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000046543

Well ID: T0606548431-MW-19 Well Type: MONITORING
Source: EDF Other Name: MW-19
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-19&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-19

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

B21
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000079557

Well ID: T0606548431-MW-17 Well Type: MONITORING
Source: EDF Other Name: MW-17
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-17&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-17

B22
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000116487

Well ID: T0606548431-MW-18 Well Type: MONITORING
Source: EDF Other Name: MW-18
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-18&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-18

B23
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000142393

Well ID: T0606548431-MW-20 Well Type: MONITORING
Source: EDF Other Name: MW-20
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-20&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-20

B24
SSW
1/2 - 1 Mile
Lower

CA WELLS CAEDF0000042577

Well ID: T0606548431-MW-1 Well Type: MONITORING
Source: EDF Other Name: MW-1
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&date=&global_id=T0606548431&assigned_name=MW-1&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0606548431&assigned_name=MW-1

Attachment: Appendices A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Database EDR ID Number

1G SSW 1/2 - 1 Mile Lower	Site ID:	083302855T		
	Groundwater Flow:	Not Reported	AQUIFLOW	50782
	Shallow Water Depth:	Not Reported		
	Deep Water Depth:	Not Reported		
	Average Water Depth:	40		
	Date:	04/1997		

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92557	8	0

Federal EPA Radon Zone for RIVERSIDE County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.
- : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
- : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

Attachment: Appendicies A-G (6434 : Gateway Heights Tract 38459)

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: Department of Fish and Wildlife

Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program

State Water Resources Control Board

Telephone: 916-341-5577

The GAMA Program is California's comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Health Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

California Drinking Water Quality Database

Source: Department of Public Health

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations

Source: Dept of Conservation, Geologic Energy Management Division

Telephone: 916-323-1779

Oil and Gas well locations in the state.

California Earthquake Fault Lines

Source: California Division of Mines and Geology

The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon

Source: Department of Public Health

Telephone: 916-210-8558

Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRRA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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CITY OF MORENO VALLEY

INITIAL STUDY FOR THE GATEWAY HEIGHTS PROJECT



GATEWAY HEIGHTS PROJECT PEN 21-0066

February 2023

Lead Agency
CITY OF MORENO VALLEY
14177 Frederick Street
Moreno Valley, California 92553

Prepared By
PSOMAS
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Volume 2b

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

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Preliminary Drainage Report

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Preliminary Drainage Report For Gateway Heights Moreno Valley, CA

A Hillside Residential Cluster Unit Development
Located 220'N of Jennings Ct and Morton Rd.

February 22, 2021
Revised March 28, 2022
Revised October 24, 2022
Revised November 29, 2022



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Project # 30182

PEN21-0066
LST21-0026

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

This report has been prepared by or under the direction of the following registered civil engineer who attests to the technical information contained herein. The registered civil engineer has also judged the qualifications of any employees that have provided data and calculations upon which the recommendations, conclusions, and decisions are based.



Christopher F. Lenz, PE 63001

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

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1 INTRODUCTION

1.1. SITE DESCRIPTION

1.1.1. LOCATION

Gateway Heights is located 220 feet north of Jennings Court and east of Morton Road in the City of Moreno Valley, Riverside County. It is parcel 256-150-001.

1.1.2. EXISTING FEATURES

The property contains 32.8 acres in the foothill of the Box Springs Mountain Reserve Park. The project proposes to develop approx. 15.43 acres of 32.8 into 108 detached condominium units with the dwelling units in an 8-unit “cluster” concept. The site drains northeast to southwest with steep slopes, especially in the hillside areas. It is bordered on three sides with vacant land, and of the south by existing single-family residences.

1.1.3. PROPOSED CONDITION

It is proposed that the subject property be developed to permit development of residential lots per the request of the client. The site will contain 108 single family lots via Planned Unit Development. Access to the site will be from Morton Road. There will be open space area placed near the entrance at the base of the hill to provide flood and water quality mitigation.

1.2. PURPOSE OF REPORT

The purpose of this report is to review the West End Moreno Master Drainage Plan (adopted 1991) and ensure design compatibility with the proposed project. This report will analyze the hydrology of the landscape and assess the hydraulic conditions of the subject parcel to verify consistency with the previously listed reports. Where necessary, control measures will be recommended to alleviate existing flood problems and provide for water quality concerns using the County of Riverside Flood Control processes.

1.3. FEMA INFORMATION

The Flood Insurance Rate Maps (Panel 06065C0733G) for this subject property shows that the site falls within Zone X. Zone X denotes areas determined to be “Areas of Undermined Flood Hazard”.

2. EXISTING DRAINAGE PATTERNS

2.1. OFFSITE

The West End Moreno Master Drainage Plan studied the drainage patterns for this overall area and identified Line A and Line B along the northwestern and southwestern edges of the property. Line A is to the north of the proposed development and thus no improvements are proposed. Line B is located offsite to the south and west of the property. The project area is within the contributory area of Line B. Flows that originate in the hillside areas drain southwesterly and some defined watercourses have formed. A portion of the site drains southwesterly to Line B, and the other portion drains westerly along another main flow path along the north side of Morton Road. This report analyzed three main watercourses affecting the development limits. Two of the watercourses continue southwesterly, join each other at point 305, and then intersect with the large wash that runs along the southwest edge of the property at point 306. Points 304 and 403 have been determined at 90.6 cfs and 26.7 cfs respectively. Another smaller area impacts the northeastern edge of the development area and is contributory to Line A. Point 502 has been determined at 7.8 cfs. Refer to the Existing Conditions Exhibit. In addition to the the main washes that impact the eastern edge of the site and continue through the site, there are four concentrations of flow that originate onsite and discharge along the western property line. Those too are analyzed. Points 602, 702, 802, and 902 have been determined at 5.8 cfs, 1.8 cfs, 5.7 cfs, and 8.0 cfs respectively. Refer to the Existing Conditions Exhibit.

2.2. ONSITE

The site has been disturbed and graded in recent history (mostly for fire mitigation). There are existing concentrations of storm runoff traversing the site. There are defined jurisdictional watercourses along the southwestern edge of the property that has historically conveyed storm runoff along the back of the existing homes, and then across Morton Road. There are a few minor non jurisdictional concentrations of flow at the base of the hills that originate on site from the hillside. Using the proposed development limits, this report analyzed the 1,3,6, and 24hr, 2,5,10, and 100 year runoff events (per the RCFCWCD method). Refer to the Onsite Existing Conditions Exhibit

3. PROPOSED DRAINAGE PATTERNS

3.1. OFFSITE

For the offsite, hillside runoff, the project is proposing three storm drain collection points. Point 502 is along the northern edge, is 7.8 cfs, and will be carried by a 24" pipe through the project, continuing westerly along the

existing flow path. The other two, points 403, and 304, are 26.7 cfs, and 90.6 cfs, respectively. 403 will be carried by a proposed 24" pipe and connected to a proposed 36" pipe that carries the flow from point 304. That proposed storm drain system also connects to the historic flow path. Preliminary pipe capacity calculations are located in Appendix B. At time of final design additional design including HGL will be required. The project is adjacent to the proposed MDP Line B crossing, which is just south of the projects entrance, but is offsite. The project has been designed to route the hillside flows through the project via a proposed 36" pipe, then outlet to the Line B system. The project proposes to build the Line B Crossing. Two (2) 3' x 6' RCB culverts will be built under Morton Road. From there flows will outlet within an existing channel that carries the regional flows and mimicking the existing conditions just south of the project.

3.2. ONSITE

The *Gateway Heights* project will provide developed roads, combination bio retention and detention basins of sufficient size to accept, clean, mitigate the increase, and route the runoff from the proposed site. Basins for Gateway Heights have been designed to detain the difference in runoff hydrograph volume between the "developed" condition and the "pre-developed" condition using basin routing calculations. Runoff will be routed to bio-retention basins throughout the project via storm drain inlets. The water quality basins will drain via underdrains into a storm drain system and eventually into the proposed Line B System. Outlet design to be provided with final routing calculations to match existing conditions. It is anticipated that existing conditions can be matched.

4. HYDROLOGIC CONDITIONS

The Synthetic Unit Hydrograph and Rational Methods have been employed to determine peak runoff amounts and volumes. The Riverside County Flood Control and Water Conservation District (RCFCD & WCD) Hydrology Manual (reference 1) was used to develop the hydrological parameters for the 1, 3, 6, and 24 hr, 2, 5, 10, and 100 year storm events. Refer to appendix A for detail.

4.1. OFFSITE

The offsite runoff potential has been analyzed with the Rational Method per the Riverside County Flood Control and Water Conservation District (RCFCD & WCD) Hydrology Manual (reference 1).

The Following Data is the result of the calculations;

NODE	Tc	SUBAREA FLOW	TOTAL FLOW
102	8.2 MIN	22.6 CFS	22.6 CFS
103	11.1 MIN	39.3 CFS	81.9 CFS
202	10.7 MIN	22.7 CFS	22.7 CFS
203	12.0 MIN	27.2 CFS	49.9 CFS
103*	11.1 MIN		108.4 CFS
104	13.4 MIN	99.9 CFS	208.3 CFS
105	14.6 MIN	6.3 CFS	214.6 CFS
105*	12.3 MIN		334.2 CFS
302	10.7 MIN	25.4 CFS	25.4 CFS
303	12.5 MIN	35.5 CFS	61.0 CFS
304	14.4 MIN	29.6 CFS	90.6 CFS
305	15.0 MIN	3.3 CFS	93.9 CFS
305*	10.7 MIN		116.8 CFS
306	11.1 MIN	2.8 CFS	119.6 CFS
*STREAM CONFLUENCE			

NODE	Tc	SUBAREA FLOW	TOTAL FLOW
402	8.5 MIN	6.0 CFS	6.0 CFS
403	10.0 MIN	20.7 CFS	26.7 CFS
305	10.7 MIN	5.3 CFS	32.0 CFS
502	9.0 MIN	7.8 CFS	7.8 CFS
503	9.7 MIN	7.3 CFS	15.2 CFS
602	11.3 MIN	5.8 CFS	5.8 CFS
702	8.8 MIN	1.8 CFS	1.8 CFS
802	9.9 MIN	5.7 CFS	5.7 CFS
902	12.4 MIN	8.0 CFS	8.0 CFS

4.2. ONSITE

In the existing condition, the proposed development envelope is varying terrain with steeper areas. It is proposed to be developed into single family cluster lots. The onsite runoff potential has been analyzed with the Synthetic Unit Hydrograph Method per the Riverside County Flood Control and Water Conservation District (RCFCD & WCD) Hydrology Manual (reference 1).

The Following Data is used in the calculations;

Soils Group - C

Pre-development Runoff Index - 84 with 0% impervious

Post-development Runoff Index - 69 with 65% impervious

Rainfall Data - Winchester Slope = 0.52

2yr - 1hr = 0.466"

100yr - 1hr = 1.19"

2yr - 3hr = 0.799"

100yr - 3hr = 1.89"

2yr - 6hr = 1.09"

100yr - 6hr = 2.55"

2yr - 24hr = 1.93"

100yr - 24hr = 4.64"

Per RCFCWCD method, the results of the hydrograph analysis are in the below tables.

basin routing is provided to show the proposed condition can be mitigated to less than the existing condition. The following tables summarize that volume calculations.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Moreno Valley 33 - Area A Pre-Development								
Storm Duration								
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	5.4	0.13	2.9	0.14	2.5	0.15	0.5	0.12
5 year	7.8	0.20	4.1	0.23	3.6	0.24	1.0	0.25
10 year	9.6	0.26	5.1	0.31	4.5	0.32	1.4	0.37
100 year	16.2	0.51	8.9	0.75	7.9	0.94	3.1	1.35

Moreno Valley 33 - Area A Post-Development								
Storm Duration								
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	4.6	0.12	2.4	0.18	2.1	0.23	0.7	0.40
5 year	6.5	0.17	3.3	0.24	3.0	0.32	0.9	0.53
10 year	8.0	0.21	4.1	0.30	3.6	0.38	1.1	0.63
100 year	13.1	0.37	6.8	0.55	6.1	0.69	2.3	1.17

Moreno Valley 33 - Area B Pre-Development								
Storm Duration								
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	8.2	0.18	4.1	0.20	3.5	0.21	0.7	0.18
5 year	11.8	0.29	6.0	0.33	5.1	0.35	1.4	0.37
10 year	14.5	0.38	7.4	0.45	6.3	0.47	2	0.54
100 year	24.4	0.74	12.9	1.09	11.2	1.37	4.5	1.96

Moreno Valley 33 - Area B Post-Development (Area B and C Pre-Development)								
Storm Duration								
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	11.4	0.31	6.4	0.48	5.6	0.64	1.8	1.09
5 year	16.2	0.45	8.9	0.66	7.9	0.86	2.4	1.44
10 year	19.9	0.56	10.9	0.80	9.6	1.04	3.1	1.73
100 year	32.7	1.01	18.2	1.5	16.2	1.89	6.2	3.18

As seen in the above calculations, Area A post development runoff is less than the pre-development runoff. This is expected due to the reduced area in the post development area. The balance of the area is routed into Area B. Area B will still need to mitigate the developed condition of B, plus the areas of A and C that are routed to the basin in the proposed condition, to less than the existing runoff from Area B. While Basin A does not require flood runoff mitigation it is still needed for water quality. Basin stage storage discharge details are in the below tables;

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Basin Stage-Storage-Outfall Chart					
	Depth	Area [sf]	Vol [acft]	Vol Total [acft]	Q out [cfs]*
	[ft]				
Basin B	0	8356			
	1	8356	0.058	0.058	0.7
	2	8356	0.058	0.115	0.7
	3	9566	0.206	0.321	0.7
	4	10831	0.234	0.555	0.7
	5	12153	0.264	0.819	24.0
	6	13532	0.265	1.084	24.0

0.5 cfs limited by 6" underdrain or Oraface to match 2yr 24hr

Basin Stage-Storage-Outfall Chart					
	Depth	Area [sf]	Vol [acft]	Vol Total [acft]	Q out [cfs]*
	[ft]				
Basin A	0	2355			
	1	2355	0.016	0.016	0.5
	2	2355	0.016	0.032	0.5
	3	3229	0.064	0.097	0.5
	4	4223	0.086	0.182	0.5
	5	5318	0.110	0.292	24.0
	6	6422	0.111	0.402	24.0

0.7 cfs limited by 6" underdrain or Oraface to match 2yr 24hr

Basin B is preliminarily sized at 1.1 ac-ft, and Basin A is sized at a volume of 0.4 ac-ft. The following tables show the results of routing the post development storms through the basins;

Moreno Valley 33 - Area A Post-Development Routed								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
Frequency								
2 year							0.5*	0.02
100 year	0.5	0.33	6.4	0.21	5.5	0.21	2.3	0.19

By orafice control or 6" underdrain slope

Moreno Valley 33 - Area B Post-Development Routed								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
Frequency								
2 year							0.7*	0.35
100 year	18.0	0.76	15.9	0.73	13.8	0.71	6.1	0.63

*By orafice control or 6" underdrain slope

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

5. HYDRAULIC CONDITIONS

5.1. Existing Conditions

There are 8 primary washes that were analyzed for hydraulic conditions in the existing condition. They are identified in the existing conditions maps at concentration points 104, 304, 403, 502, 602, 702, 802, and 902. These are mountain/foothill washes with steep slopes. The velocities are 15 ft/s, 12 ft/s, 8 ft/s, 11 ft/s, 7 ft/s, 5 ft/s, 6 ft/s, and 6 ft/s respectively.

5.2. Proposed Conditions

The proposed condition for this site will be to construct a network of public roads within the site to convey storm runoff into the bioretention/water quality basins. The two Bio-retention basins (Basins A and B) are planned in the southwest corner of the site to clean and discharge the flood water. Basin B is north of the main entrance, and Basin A is within the enlarged median of the main entrance. These structures will be designed per Riverside County LID - Bioretention standards in more detail at time of final design. Refer to the Proposed Conditions Exhibit for a sample section. The flows will be discharged offsite via underdrains and overflow grates connected to storm drain pipes and outlets designed aligned with existing washes. The eastern offsite concentrations identified in section 4.1 and 5.1 and on the existing conditions offsite exhibit, points 304, 403, and 502, will be carried through the project by storm drain and discharged at or near historic flow paths. They are preliminarily sized as shown on Figure 2, with preliminary sizing in Appendix B. Point 503 will be diverted from its existing flow path slightly north within the same wash. This is a small diversion of flow. The discharge points at 602, 702, and 802 will be eliminated and all onsite drainage within area B will be routed through Basin B and outleted at point 902. This concentration of flow will require adjacent property owner approval. All of these concentration points join in the same stream within that owner's site, and it is preferable to have them controlled via one outlet and channel system. It is assumed the project will be required to build its half width along the limited frontage of Morton Road along with any required tapers. Control of drainage along the project's frontage is difficult. First, the project is well above grade from the road, eliminating any possibility to route road runoff northeasterly into the project. Second, there is a high point in Morton Road very near the project entrance, and thus the very minor road runoff (0.3 acre area total, <1cfs) will be routed northwesterly and southeasterly along the road as it is currently carried. Analysis and Design of drainage control facilities for this area will be provided at final design in conjunction with Morton Road design plans. The runoff carried by Morton Road will be reduced by the construction of the Project and the Line B System.

5.3. Roads

Interior roads will consist of pavement thickness in conformance with the Geotechnical Report, when available, and per County of Riverside Standards. Roads will have 36 foot widths measured curb face to curb face per County of Riverside Standards. Streets will be designed to pass the 10-year storm water within the curb, with the 100-year flows contained within the right-of-way. All interior roads will have cross slopes of two (2) percent. With the high slopes due to the hillside on the proposed map, the 10 yr peak runoff calculated for the 2.08% minimum slope can carry 76 cfs in the street. That exceeds the expected 100 year peak runoff for the onsite flows (28cfs). At final design storm drain may be placed to keep the intersections dry. Storm drain is also required for outlet from the bio-retention basins. Minimum size for these lines is 24" per City of Moreno Valley Standards, all lines are to be 24" unless otherwise noted. At time of final design, detailed storm drain calculations and sizing will be required. It is not anticipated that any onsite storm drain will require RCFCDD maintenance, and thus will be reviewed by Moreno Valley. Morton Road will be widened along the project entrance. Additionally, Line B will be constructed under Morton Road per the MDP just south of the project. This addition of Line B will remove a significant amount of existing runoff that enters Morton Road from the hillside (334 cfs). That existing runoff that floods Morton Road and Jennings Court intersection will be routed by Line B to the west side of Morton and discharged to an existing natural channel.

6. WATER QUALITY

All of the onsite water quality runoff volume is proposed to be collected within the proposed drainage system and treatment will be handled via combination bio-retention and flood storage basins at the southwestern edge. Detailed design of the basins, outlet structures, and any filter media will be prepared at final design but must treat the volume indicated in the Project Preliminary WQMP. Preliminary sizing and design for the basins is contained in Appendix C and as shown on the Proposed Conditions Exhibit Basin Detail. Final design of the basins, complete with landscaping and pipe plans will be provided with final construction plans and landscape plans.

7. MAINTENANCE

It is proposed that all of the onsite features including internal project open space, basins, and storm drainpipes will be maintained by the property owner association.

Determination of the Line B facility's maintenance responsibility will be determined during the final design process.

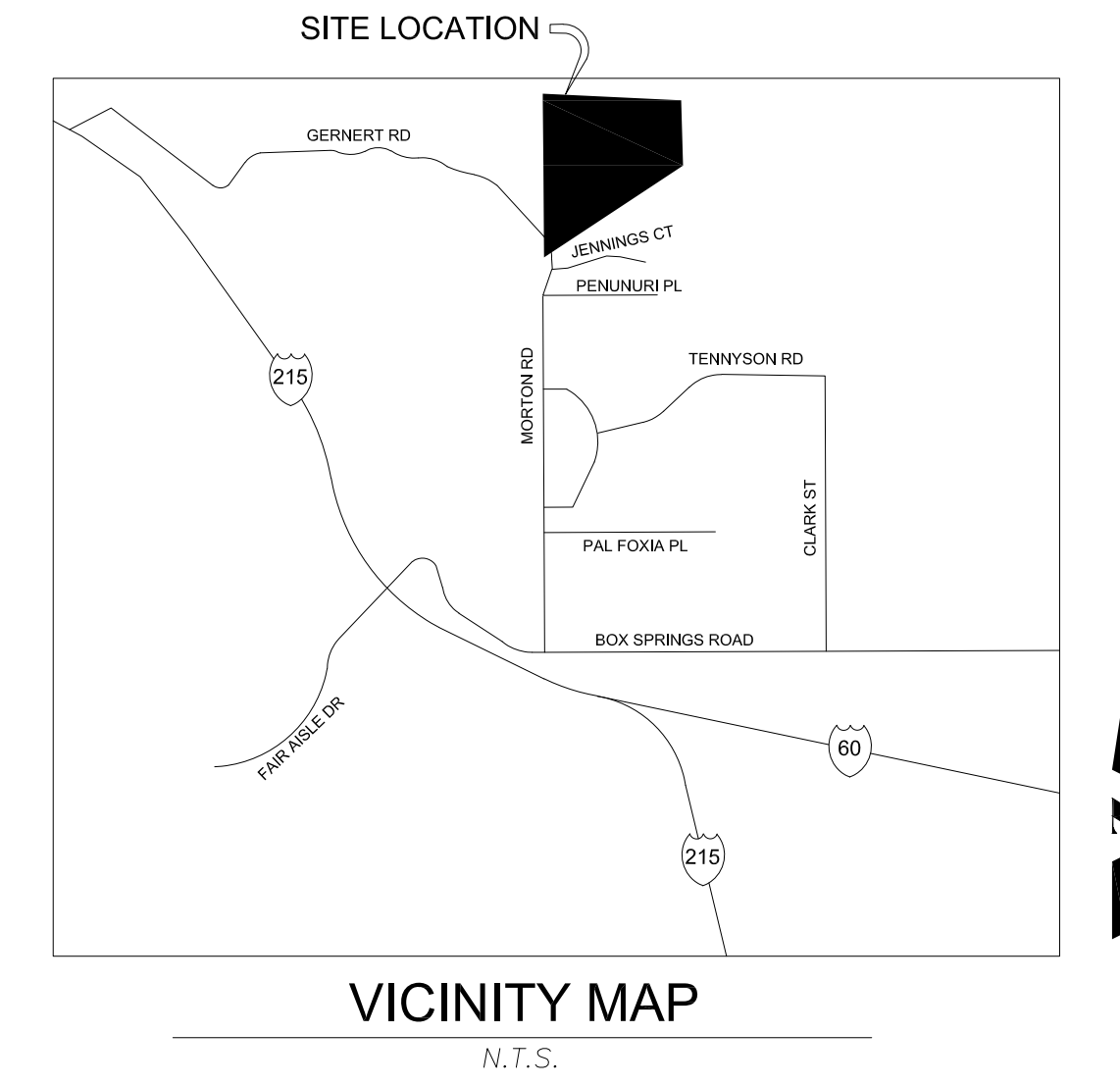
REFERENCES

1. Riverside County Flood Control and Water Conservation District Hydrology Manual, April 1978.

Figure 1

Existing Condition Exhibit

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



NOTES:

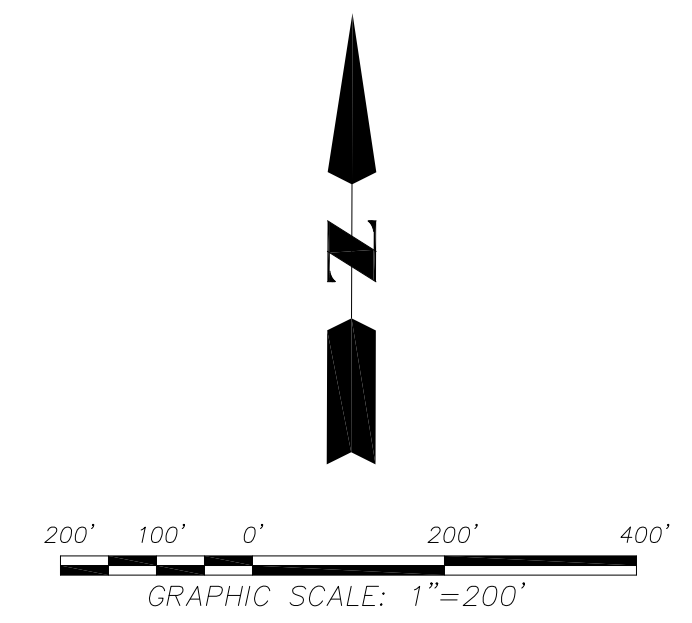
1. 5' INDEX CONTOURS SHOWN FOR EXHIBIT CLARITY. 1' CONTOURS OBTAINED BY AERIAL SURVEY AND USED FOR DESIGN AND ANALYSIS.
2. HILLSIDE CONTRIBUTORY AREA DELINEATION WAS DEVELOPED USING THE WEST END MOREANO VALLEY MASTER DRAINAGE PLAN TOPOGRAPHY. TOPOGRAPHY NOT SHOWN ON THIS EXHIBIT FOR CLARITY. WEST END MDP EXHIBIT INCLUDED IN APPENDIX E OF DRAINAGE REPORT FOR REFERENCE.
3. REFER TO APPENDIX A FOR CIVIL DRAINAGE ANALYSIS SOFTWARE OUTPUT AND INPUT DETAILS.
- 4.

NODE	Tc	SUBAREA FLOW	TOTAL FLOW	NODE	Tc	SUBAREA FLOW	TOTAL FLOW
102	8.2 MIN	22.6 CFS	22.6 CFS	402	8.5 MIN	6.0 CFS	6.0 CFS
103	11.1 MIN	39.3 CFS	61.9 CFS	403	10.0 MIN	20.7 CFS	26.7 CFS
202	10.7 MIN	22.7 CFS	22.7 CFS	305	10.7 MIN	5.3 CFS	32.0 CFS
203	12.0 MIN	27.2 CFS	49.9 CFS	502	9.0 MIN	7.8 CFS	7.8 CFS
103*	11.1 MIN		108.4 CFS	503	9.7 MIN	7.3 CFS	15.2 CFS
104	13.4 MIN	99.9 CFS	208.3 CFS	105	14.6 MIN	6.3 CFS	214.6 CFS
105	14.6 MIN	6.3 CFS	214.6 CFS	105*	12.3 MIN		334.2 CFS
302	10.7 MIN	25.4 CFS	25.4 CFS	702	8.8 MIN	1.8 CFS	1.8 CFS
303	12.5 MIN	35.5 CFS	61.0 CFS	802	9.9 MIN	5.7 CFS	5.7 CFS
304	14.4 MIN	29.6 CFS	90.6 CFS	902	12.4 MIN	8.0 CFS	8.0 CFS
305	15.0 MIN	3.3 CFS	93.9 CFS				
305*	10.7 MIN		116.8 CFS				
306	11.1 MIN	2.8 CFS	119.6 CFS				

*STREAM CONFLUENCE

LEGEND:

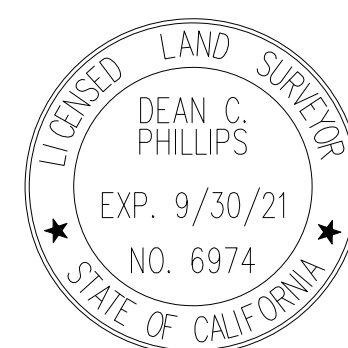
- CONTRIBUTORY AREA
- PROPOSED EDGE OF DISTURBANCE
- MAJOR OFFSITE FLOWPATH
- MINOR ONSITE FLOWPATH
- FLOW DIRECTION
- 102 / XXXX / FLOWLINE ELEVATION
- A1 / 6.8 / SUBAREA ACRES



SUBMITTALS:	REVISIONS		
	NO.	DESCRIPTION	DATE
DESIGNED BY:			
DRAWN BY:			
CHECKED BY:			



 CHRISTOPHER F. LENZ DATE _____
 R.C.E. No. 63001



 DEAN C. PHILLIPS DATE _____
 L.S. No. 6974
 dphillips@unitedeng.com



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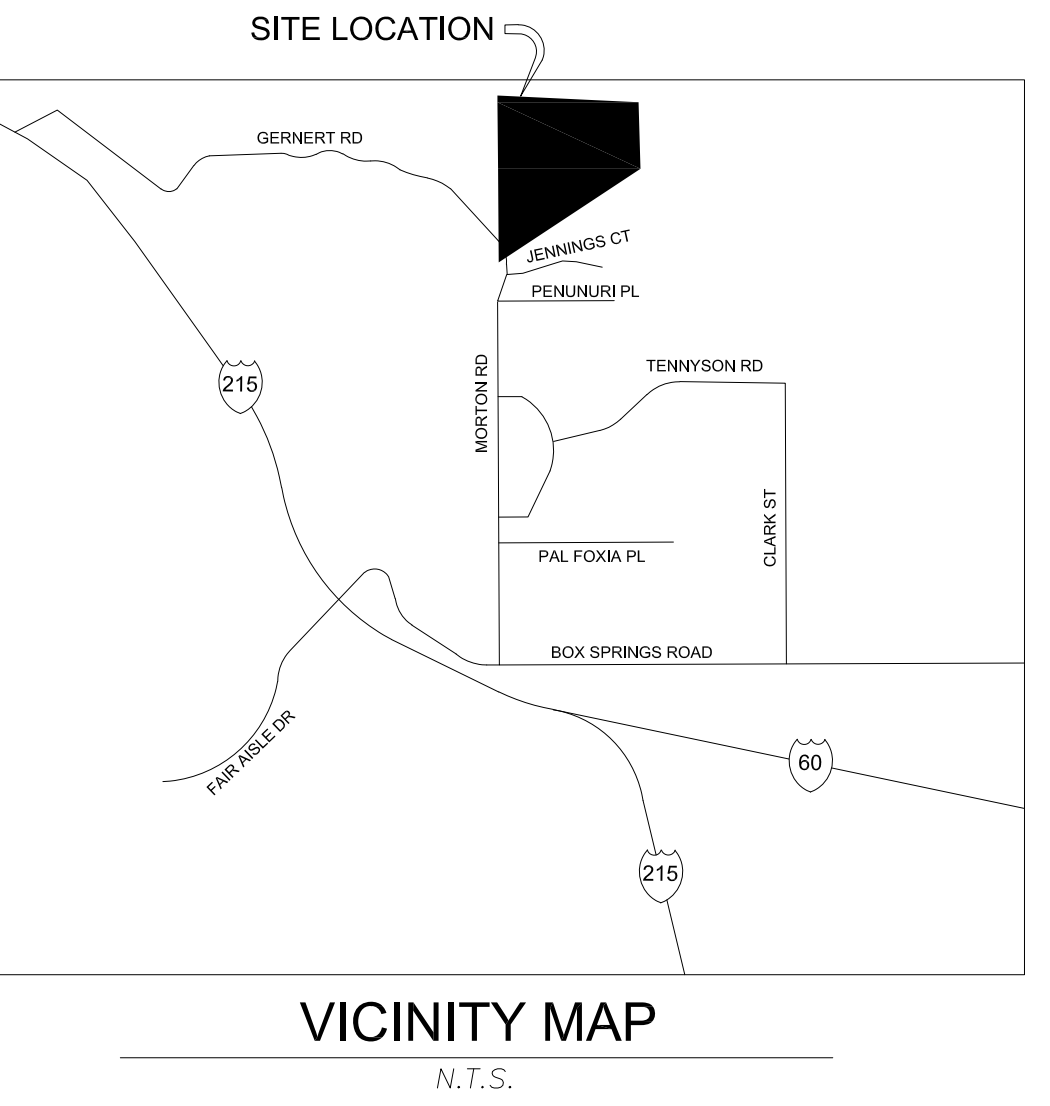
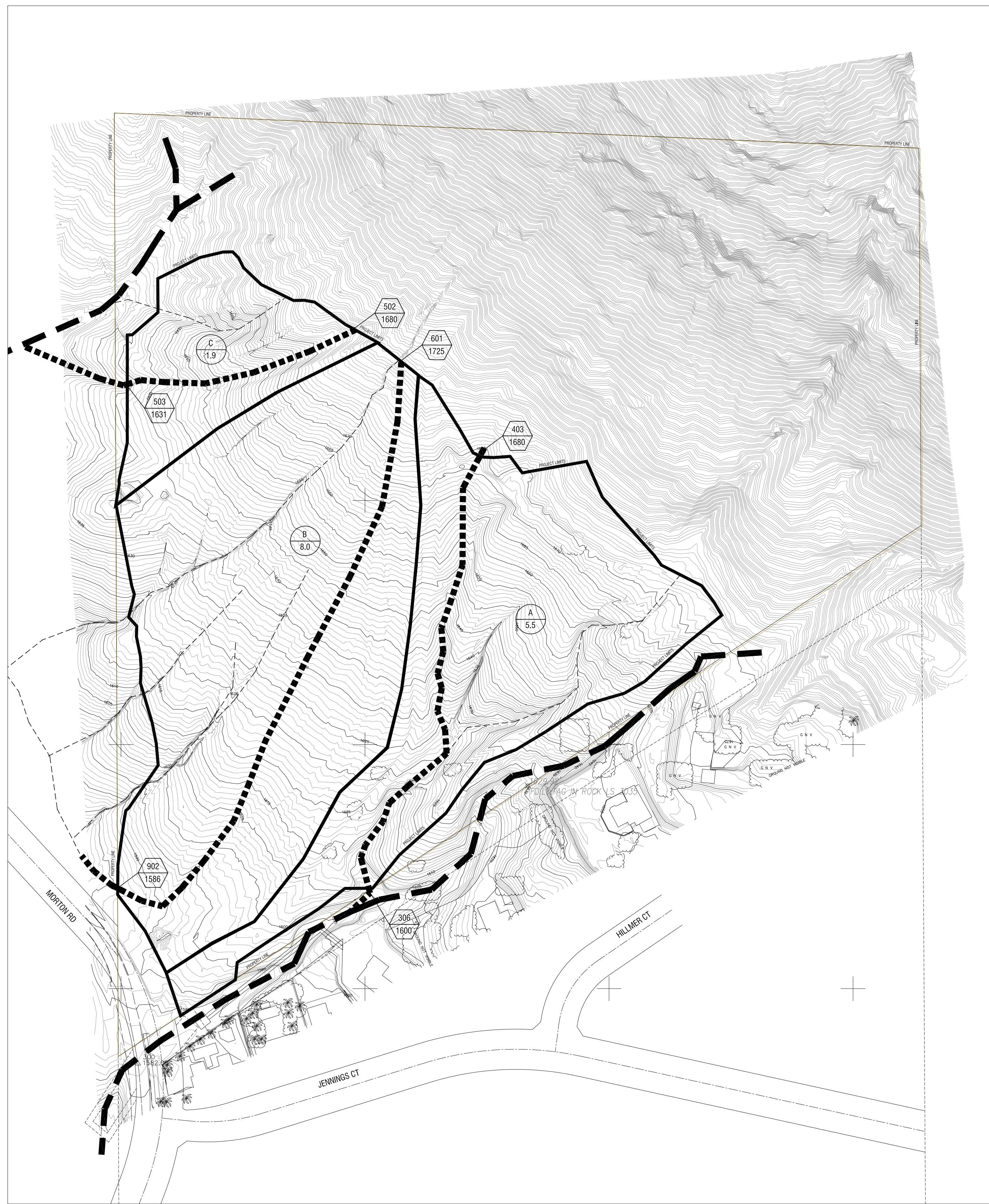
GATEWAY HEIGHTS

EXISTING CONDITION EXHIBIT

DATE	MARCH 2022
SHEET	1 OF 1
PROJECT NUMBER	CA-30182

Figure 2

Onsite Existing Condition Exhibit (Used for SCS Pre-post analysis)

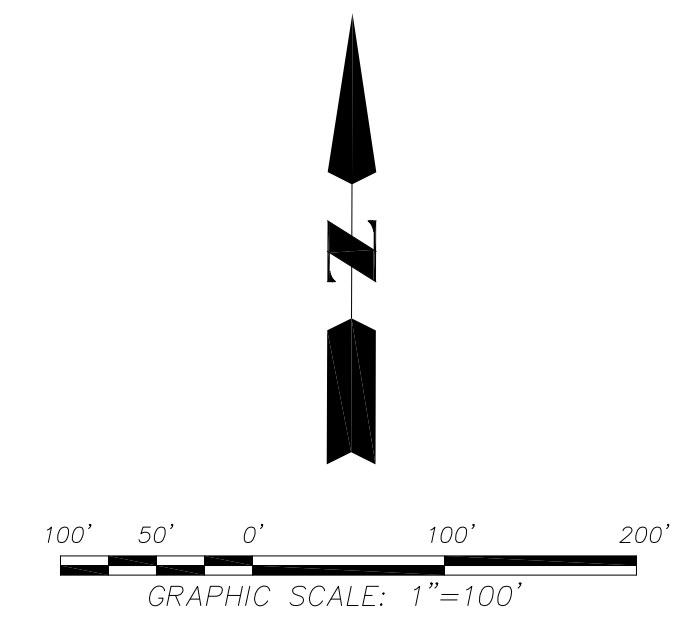


NOTES:
 - PRE DEVELOPMENT AREAS DEVELOPED FROM POST DEVELOPMENT AREAS OF DISTURBANCE FOR COMPARISON PRE/POST RUNOFF.
 - ALTHOUGH MULTIPLE POINTS OF RUNOFF ARE PRESENT IN THE EXISTING CONDITION FOR AREAS B AND C, DRAINAGE DIVERSION IS PROPOSED TO CONSOLIDATE OUTLETS. THEREFORE EXISTING CONDITIONS ARE ANALYZED WITH A SINGLE ASSUMED OUTLET. ALL AREA B WASHES JOIN IN A SINGLE STREAM DOWNSTREAM, AS DOES AREA C.
 - REFER TO APPENDIX A FOR CIVIL DRAINAGE ANALYSIS SOFTWARE OUTPUT AND INPUT DETAILS. AND REFER TO TABLE IN SECTION 4.2 OF DRAINAGE REPORT.

AREA	L [FT]	Lc [FT]	AREA [AC]	R1	%IMP
A	852	341	5.53	84	0
B	1083	476	8.04	84	0
C	392	244	1.85	84	0

LEGEND:

- CONTRIBUTORY AREA
- PROPOSED EDGE OF DISTURBANCE
- MAJOR OFFSITE FLOWPATH
- MINOR ONSITE FLOWPATH USED IN ANALYSIS
- MINOR ONSITE FLOWPATH NOT USED IN ANALYSIS
- FLOW DIRECTION
- NODE/CONCENTRATION POINT
FLOWLINE ELEVATION
- SUBAREA
ACRES

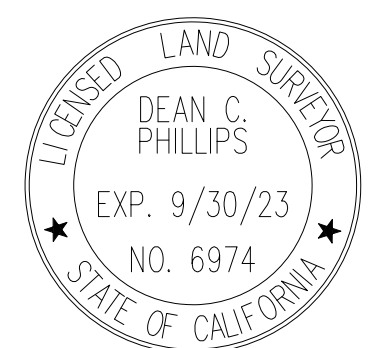


SUBMITTALS:		REVISIONS	
NO.	DESCRIPTION	DATE	

DESIGNED BY:
 DRAWN BY:
 CHECKED BY:



CHRISTOPHER F. LENZ DATE
 R.C.E. No. 63001



DEAN C. PHILLIPS DATE
 L.S. No. 6974
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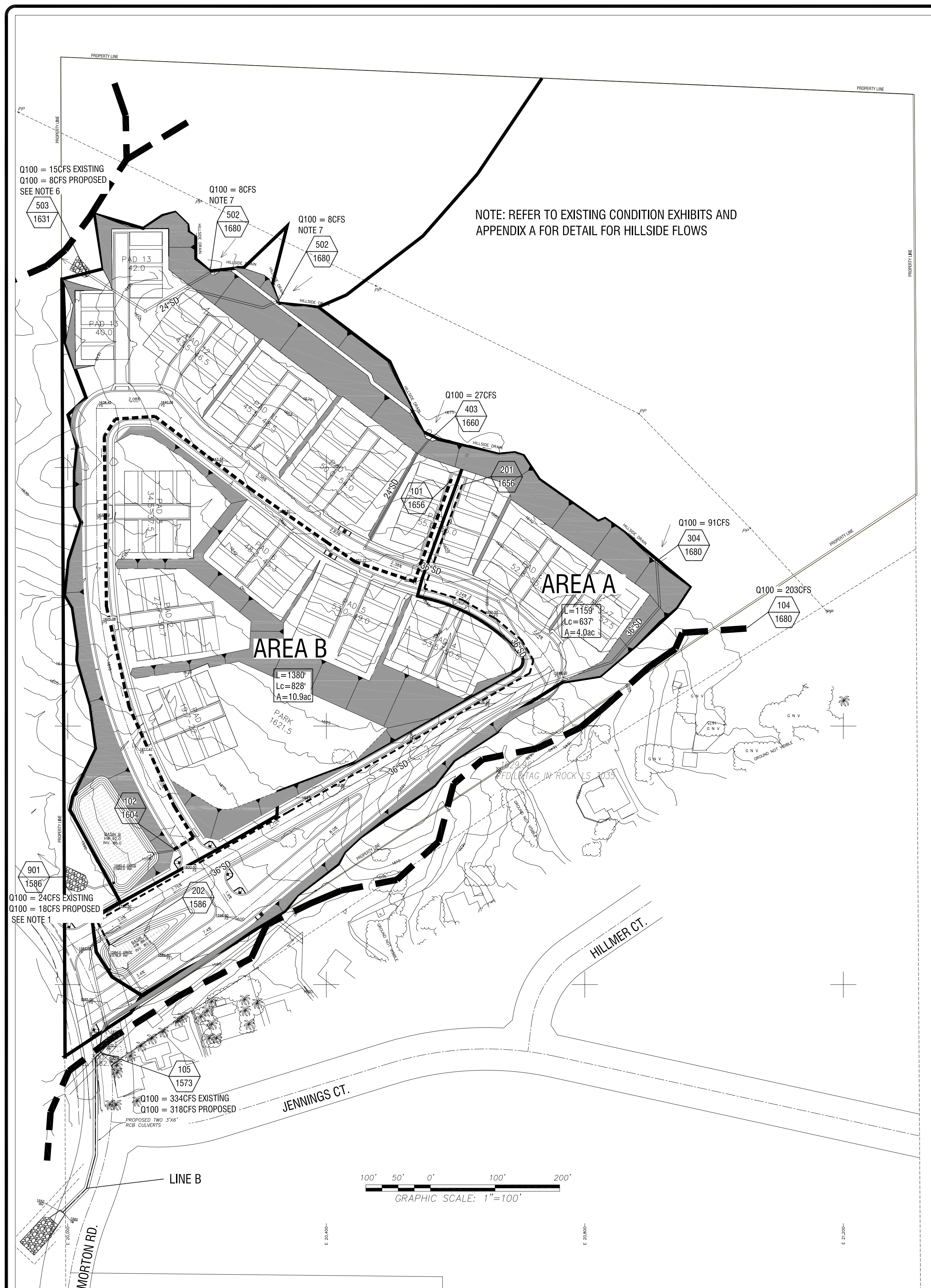
GATEWAY HEIGHTS
ONSITE EXISTING CONDITION EXHIBIT
FOR SCS HYDROGRAPH PRE-POST
COMPARISON

DATE	MARCH 2022
SHEET	1 OF 1
PROJECT NUMBER	CA-30182

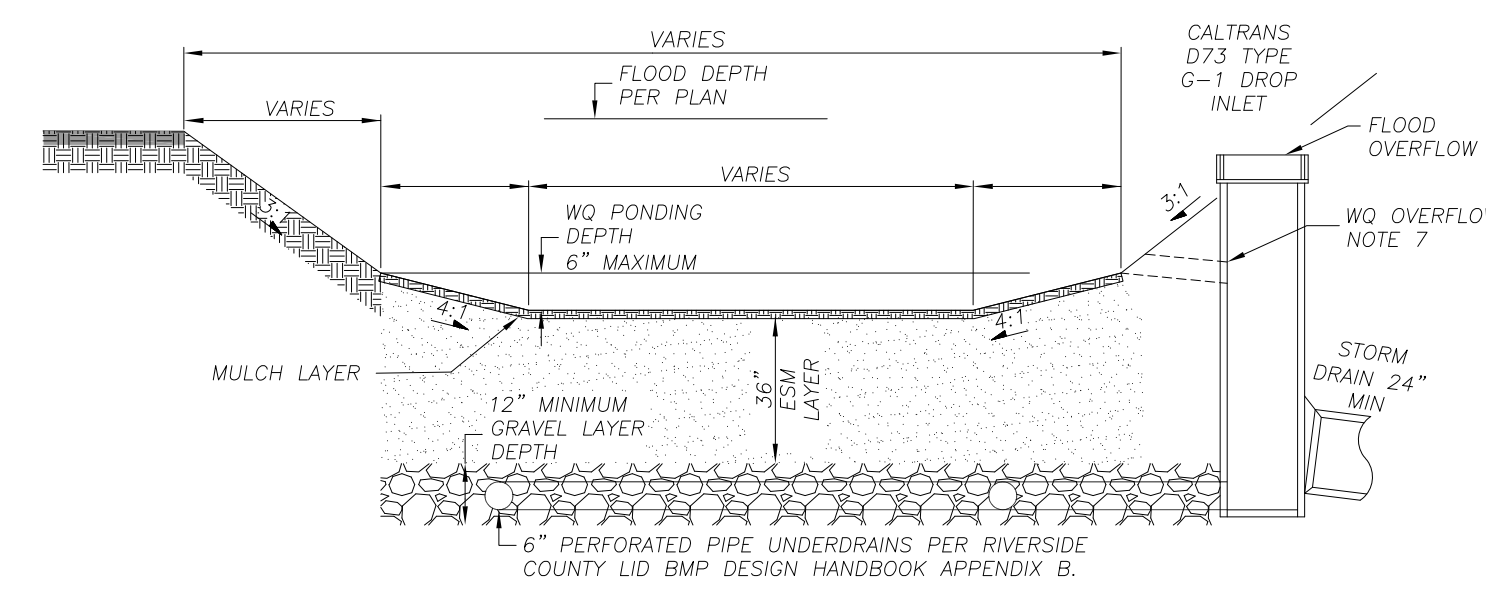
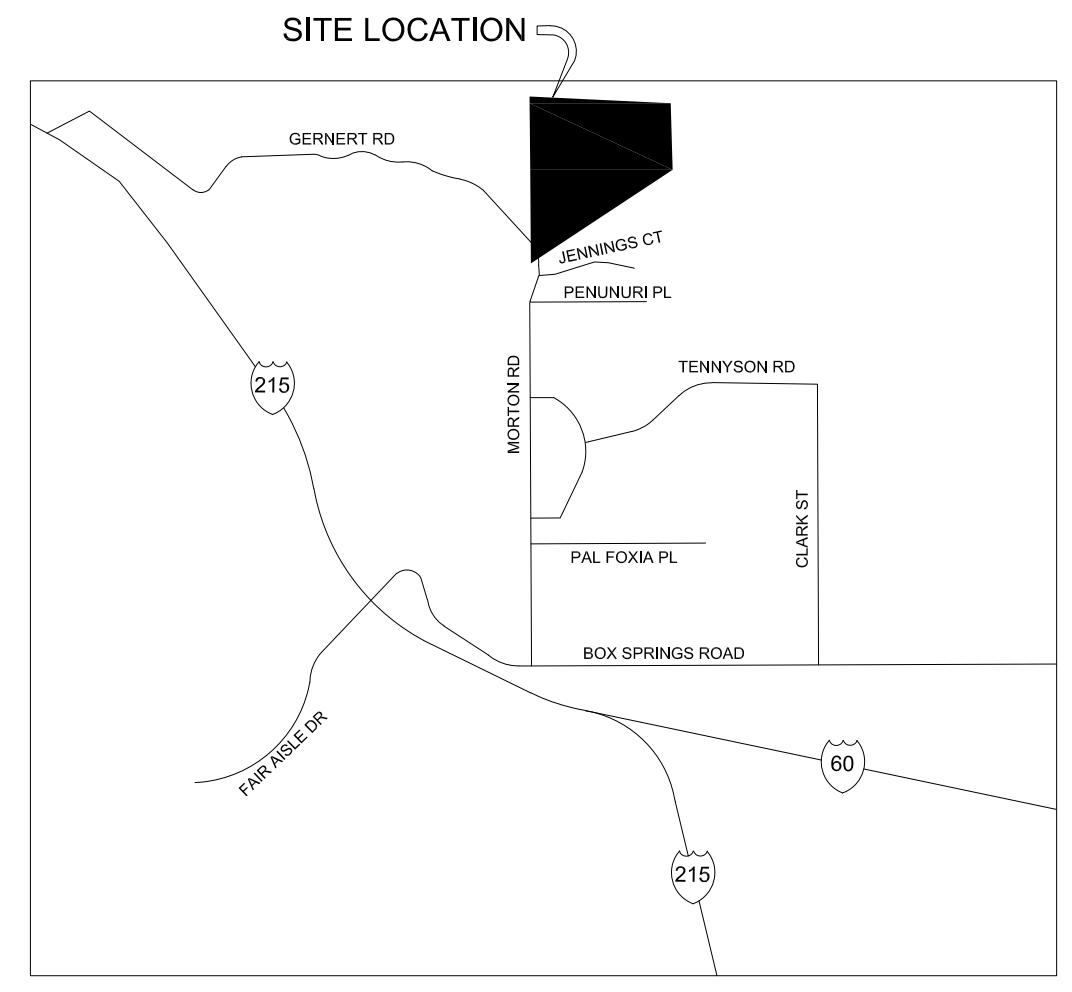
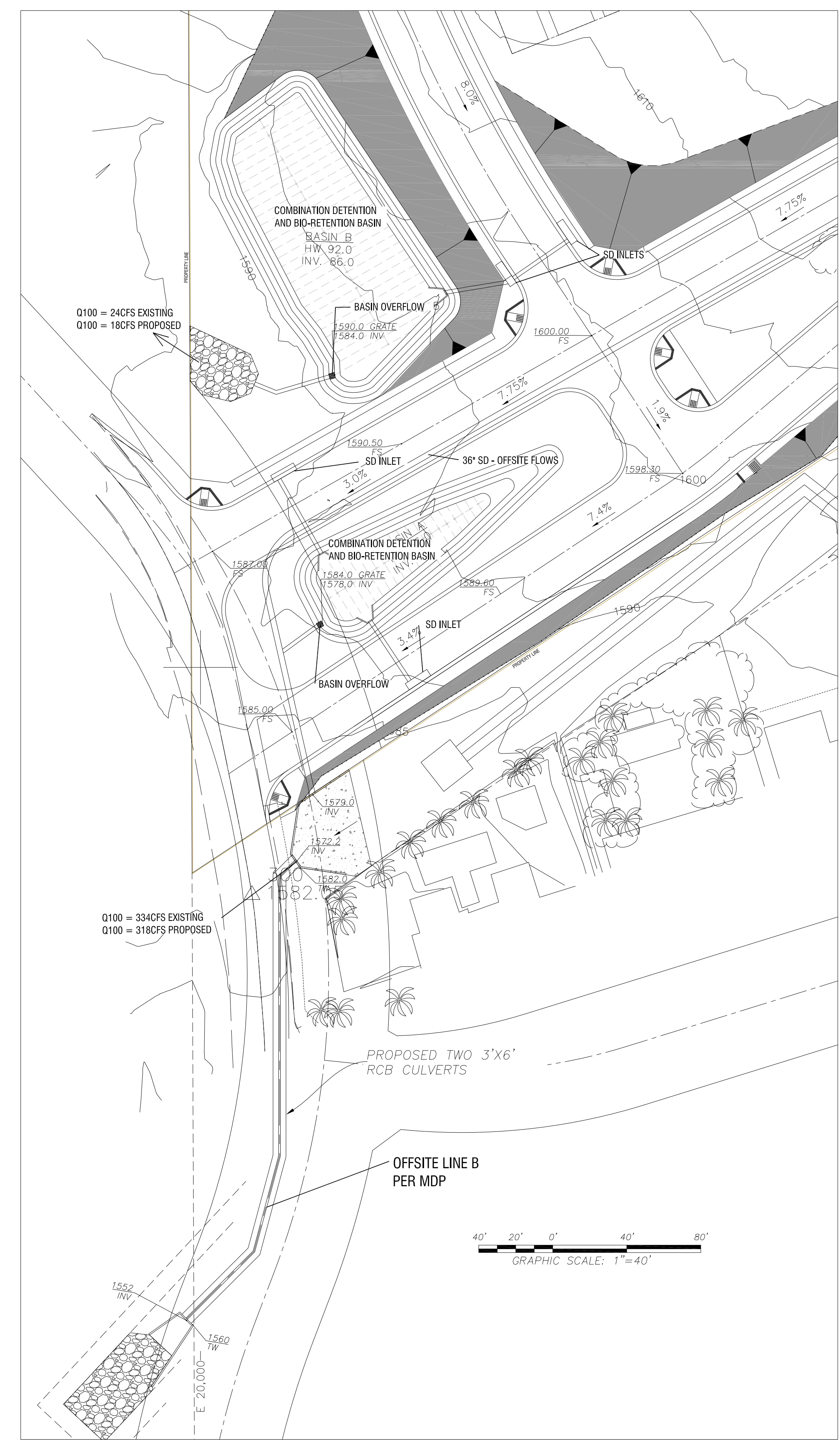
Figure 3

Proposed Condition Exhibit

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



BASIN AND OUTLET DETAIL AREA



LEGEND:

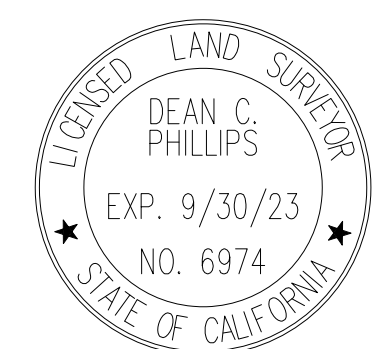
- CONTRIBUTORY AREA & DISTURBANCE AREA
- FLOW DIRECTION
- ONSITE FLOWPATH
- 102 NODE/CONCENTRATION POINT FLOWLINE ELEVATION
- L=XXX' Lc=XXX' A=XXac DRAINAGE AREA & DETAILS
- 6" UNDERDRAINS
- 6" CLEANOUTS

- NOTES:
- ALTHOUGH MULTIPLE POINTS OF RUNOFF ARE PRESENT ALONG THE WEST EDGE OF THE PROPERTY (POINTS 602, 702, 802, & 902) IN THE EXISTING CONDITION, DRAINAGE DIVERSION IS PROPOSED TO CONSOLIDATE OUTLETS ALONG THE WESTERN EDGE AT POINT 902. ALL WASHES ALONG THE WESTERN EDGE JOIN IN A SINGLE STREAM DOWNSTREAM.
 - BASINS AS SHOWN AND WITH CONTROL STRUCTURES WILL BE DETAILED AT FINAL DESIGN TO ENSURE OUTLETS TO WEST AND SOUTH ARE MITIGATED TO DESIGN FLOWS.
 - 5' CONTOURS SHOWN FOR EASY VIEWING, HOWEVER 1' CONTOURS WERE OBTAINED AND USED FOR DESIGN.
 - REFER TO APPENDIX A FOR CIVIL COMPUTER ANALYSIS OUTPUT, AND DESIGN DETAILS.
 - REFER TO T YEAR SUMMARY TABLE IN SECTION 4.2 OF DRAINAGE REPORT FOR SUMMARY OF RETURN YEAR AND STORM DURATION FLOWS.
 - POINT 503 DISCHARGE POINT MOVED SLIGHTLY NORTH TO ALIGN WITH ANOTHER DISCHARGE POINT AND THE REGIONAL OFFSITE CHANNEL.
 - POINT 502 CONCENTRATION POINT HAS POTENTIAL TO MOVE, IN A SOMEWHAT UNDEFINED SHEET FLOW HILLSIDE CONDITION, DUE TO ITS SMALL EXPECTED RUNOFF. IT IS DESIGNED FOR COLLECTION IN TWO POSSIBLE CONCENTRATION POINTS, EACH AT THE PEAK RUNOFF.

SUBMITTALS:	REVISIONS		
	NO.	DESCRIPTION	DATE
DESIGNED BY:			
DRAWN BY:			
CHECKED BY:			



CHRISTOPHER F. LENZ DATE
R.C.E. No. 63001



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GATEWAY HEIGHTS

PROPOSED CONDITION EXHIBIT

DATE	OCTOBER 2022
SHEET	1 OF 1
PROJECT NUMBER	CA-30182

Appendix A

Soil Map—Western Riverside Area, California



Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



MAP LEGEND

MAP INFORMATION

- Area of Interest (AOI)**
 - Area of Interest (AOI)
- Soils**
 - Soil Map Unit Polygons
 - Soil Map Unit Lines
 - Soil Map Unit Points
- Special Point Features**
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
- Water Features**
 - Streams and Canals
- Transportation**
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background**
 - Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
 Survey Area Data: Version 13, May 27, 2020

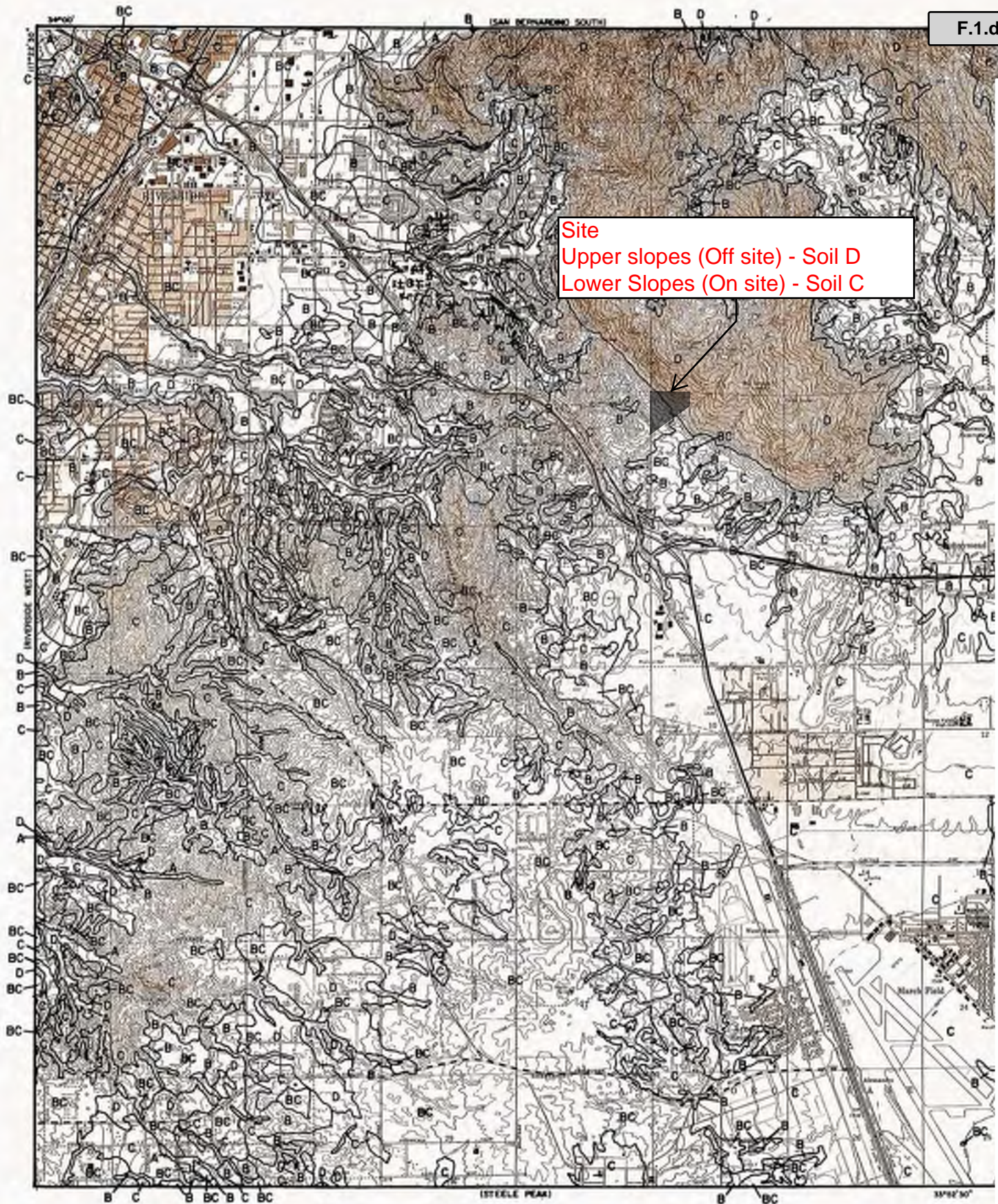
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 25, 2019—Jun 25, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ChF2	Cieneba sandy loam, 15 to 50 percent slopes, eroded	4.2	2.0%
CkF2	Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded	4.3	2.1%
FkD2	Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded	0.0	0.0%
MmD2	Monserate sandy loam, 8 to 15 percent slopes, eroded	9.7	4.6%
RtF	Rockland	189.4	91.2%
Totals for Area of Interest		207.6	100.0%



Site
 Upper slopes (Off site) - Soil D
 Lower Slopes (On site) - Soil C

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

LEGEND

— SOILS GROUP BOUNDARY
 A SOILS GROUP DESIGNATION

RCFC & WCD
 HYDROLOGY MANUAL

**HYDROLOGIC SOILS GROUP MAP
 FOR
 RIVERSIDE-EAST**

Western Riverside Area, California

RtF—Rockland

Map Unit Setting

National map unit symbol: hcyn

Elevation: 650 to 4,000 feet

Mean annual precipitation: 8 to 15 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 110 to 180 days

Farmland classification: Not prime farmland

Map Unit Composition

Rockland: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rockland

Setting

Down-slope shape: Concave

Across-slope shape: Convex

Parent material: Residuum derived from mixed sources

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

Data Source Information

Soil Survey Area: Western Riverside Area, California

Survey Area Data: Version 13, May 27, 2020



NOAA Atlas 14, Volume 6, Version 2
Location name: Moreno Valley, California, USA*
Latitude: 33.9583°, Longitude: -117.2954°
Elevation: 1628.79 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.092 (0.077-0.112)	0.121 (0.101-0.147)	0.160 (0.133-0.194)	0.192 (0.158-0.235)	0.237 (0.188-0.300)	0.272 (0.212-0.353)	0.309 (0.234-0.411)	0.348 (0.257-0.477)	0.402 (0.284-0.576)	0.446 (0.304-0.661)
10-min	0.133 (0.111-0.161)	0.174 (0.145-0.211)	0.229 (0.190-0.278)	0.275 (0.227-0.337)	0.339 (0.270-0.430)	0.390 (0.304-0.506)	0.443 (0.336-0.589)	0.499 (0.368-0.683)	0.577 (0.407-0.825)	0.640 (0.436-0.948)
15-min	0.160 (0.134-0.194)	0.210 (0.175-0.255)	0.277 (0.230-0.336)	0.332 (0.274-0.408)	0.410 (0.326-0.521)	0.472 (0.367-0.612)	0.535 (0.406-0.713)	0.603 (0.445-0.826)	0.698 (0.493-0.998)	0.774 (0.527-1.15)
30-min	0.244 (0.204-0.296)	0.320 (0.267-0.388)	0.422 (0.350-0.512)	0.506 (0.417-0.621)	0.625 (0.497-0.793)	0.718 (0.559-0.932)	0.816 (0.619-1.09)	0.918 (0.677-1.26)	1.06 (0.750-1.52)	1.18 (0.803-1.75)
60-min	0.356 (0.297-0.431)	0.466 (0.389-0.565)	0.615 (0.511-0.747)	0.738 (0.608-0.905)	0.911 (0.725-1.16)	1.05 (0.815-1.36)	1.19 (0.903-1.58)	1.34 (0.987-1.83)	1.55 (1.09-2.22)	1.72 (1.17-2.55)
2-hr	0.510 (0.426-0.618)	0.657 (0.548-0.797)	0.852 (0.708-1.04)	1.01 (0.835-1.24)	1.24 (0.983-1.57)	1.41 (1.10-1.83)	1.59 (1.20-2.11)	1.77 (1.31-2.43)	2.03 (1.43-2.90)	2.23 (1.52-3.31)
3-hr	0.624 (0.520-0.755)	0.799 (0.666-0.968)	1.03 (0.856-1.25)	1.22 (1.00-1.50)	1.48 (1.18-1.88)	1.68 (1.31-2.18)	1.89 (1.44-2.52)	2.11 (1.55-2.89)	2.40 (1.70-3.44)	2.64 (1.80-3.91)
6-hr	0.856 (0.714-1.04)	1.09 (0.911-1.33)	1.40 (1.17-1.71)	1.66 (1.37-2.03)	2.01 (1.60-2.55)	2.27 (1.77-2.95)	2.55 (1.93-3.39)	2.83 (2.09-3.87)	3.21 (2.27-4.59)	3.51 (2.39-5.20)
12-hr	1.13 (0.939-1.36)	1.45 (1.21-1.75)	1.87 (1.55-2.27)	2.21 (1.82-2.71)	2.67 (2.13-3.39)	3.03 (2.36-3.93)	3.39 (2.57-4.51)	3.77 (2.78-5.16)	4.27 (3.02-6.11)	4.67 (3.18-6.92)
24-hr	1.49 (1.32-1.71)	1.93 (1.71-2.23)	2.52 (2.22-2.91)	2.99 (2.62-3.49)	3.64 (3.08-4.39)	4.14 (3.43-5.09)	4.64 (3.76-5.85)	5.17 (4.07-6.69)	5.88 (4.45-7.92)	6.43 (4.70-8.96)
2-day	1.79 (1.58-2.06)	2.36 (2.09-2.72)	3.12 (2.75-3.61)	3.73 (3.26-4.35)	4.57 (3.87-5.51)	5.22 (4.33-6.43)	5.89 (4.77-7.42)	6.57 (5.18-8.51)	7.50 (5.68-10.1)	8.23 (6.02-11.5)
3-day	1.91 (1.69-2.21)	2.56 (2.27-2.96)	3.42 (3.02-3.96)	4.13 (3.61-4.82)	5.09 (4.31-6.14)	5.84 (4.85-7.18)	6.61 (5.35-8.32)	7.40 (5.83-9.57)	8.48 (6.42-11.4)	9.32 (6.83-13.0)
4-day	2.07 (1.83-2.39)	2.80 (2.48-3.23)	3.77 (3.32-4.36)	4.56 (3.99-5.32)	5.65 (4.79-6.81)	6.50 (5.39-7.99)	7.37 (5.97-9.28)	8.27 (6.52-10.7)	9.51 (7.20-12.8)	10.5 (7.67-14.6)
7-day	2.38 (2.10-2.74)	3.26 (2.88-3.76)	4.43 (3.90-5.13)	5.39 (4.72-6.29)	6.72 (5.69-8.10)	7.76 (6.44-9.54)	8.82 (7.15-11.1)	9.93 (7.83-12.9)	11.5 (8.67-15.4)	12.6 (9.26-17.6)
10-day	2.57 (2.27-2.96)	3.55 (3.14-4.10)	4.85 (4.28-5.62)	5.93 (5.19-6.92)	7.42 (6.28-8.94)	8.58 (7.12-10.6)	9.78 (7.93-12.3)	11.0 (8.70-14.3)	12.8 (9.66-17.2)	14.1 (10.3-19.7)
20-day	3.10 (2.75-3.58)	4.34 (3.83-5.01)	5.99 (5.28-6.93)	7.36 (6.44-8.59)	9.28 (7.86-11.2)	10.8 (8.95-13.3)	12.3 (10.0-15.6)	14.0 (11.0-18.1)	16.3 (12.3-21.9)	18.1 (13.2-25.2)
30-day	3.70 (3.28-4.27)	5.17 (4.57-5.97)	7.15 (6.30-8.28)	8.81 (7.70-10.3)	11.1 (9.42-13.4)	13.0 (10.8-15.9)	14.9 (12.1-18.7)	16.9 (13.3-21.9)	19.7 (14.9-26.6)	22.0 (16.1-30.7)
45-day	4.43 (3.92-5.10)	6.14 (5.42-7.08)	8.46 (7.46-9.79)	10.4 (9.11-12.1)	13.2 (11.1-15.9)	15.4 (12.7-18.9)	17.7 (14.3-22.2)	20.1 (15.9-26.0)	23.6 (17.8-31.7)	26.3 (19.3-36.7)
60-day	5.18 (4.58-5.97)	7.10 (6.28-8.20)	9.72 (8.57-11.3)	11.9 (10.4-13.9)	15.1 (12.8-18.2)	17.6 (14.6-21.6)	20.2 (16.4-25.5)	23.0 (18.2-29.8)	27.0 (20.5-36.4)	30.3 (22.1-42.2)

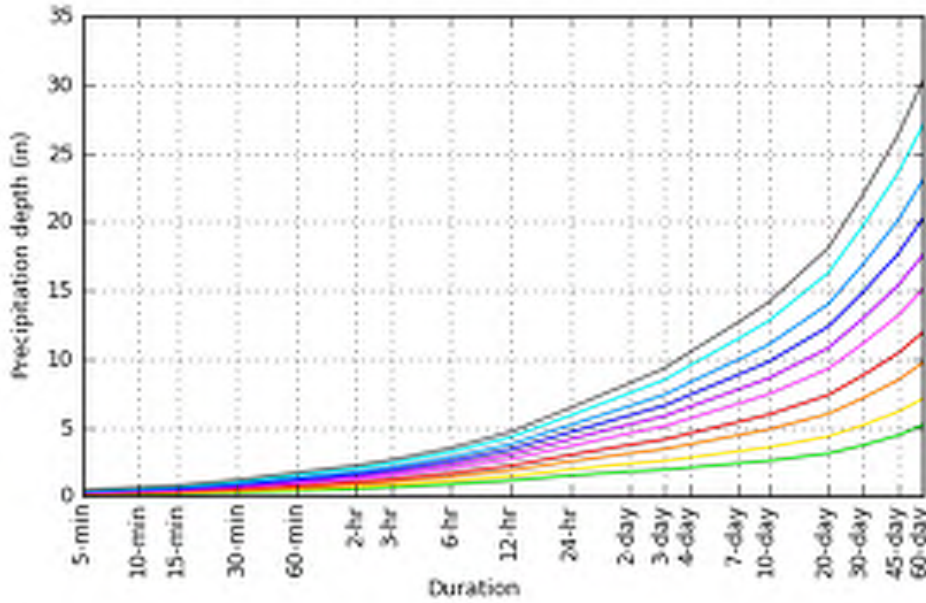
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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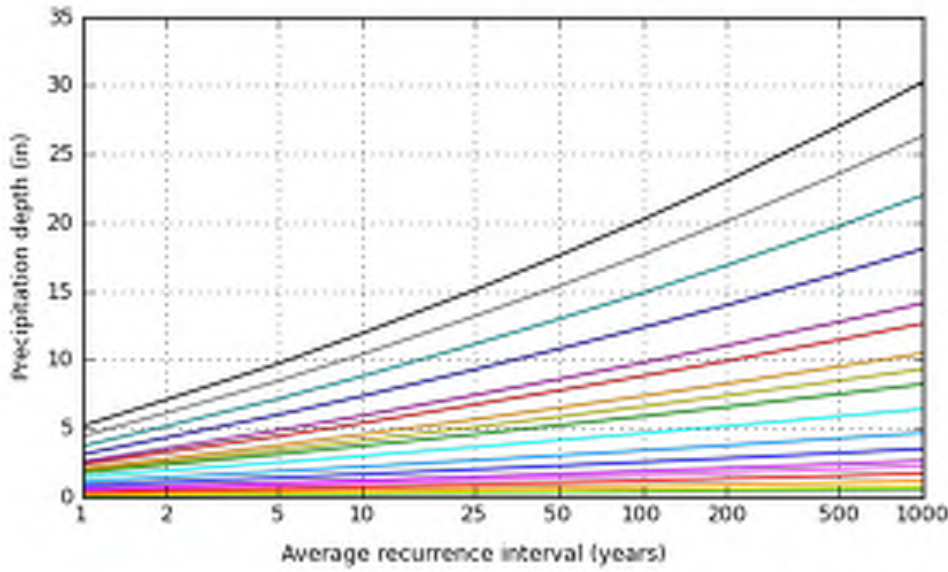
Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 33.9583°, Longitude: -117.2954°



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

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Maps & aerials

Small scale terrain

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Large scale terrain

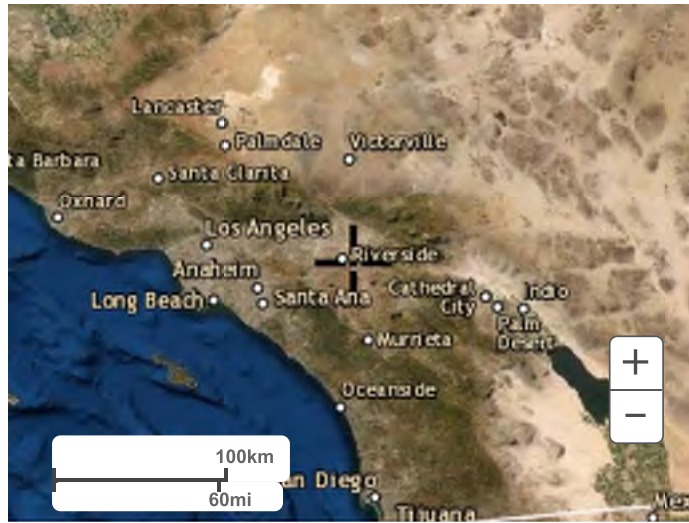


Large scale map



Large scale aerial

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



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[US Department of Commerce](#)
[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<u>NATURAL COVERS -</u>					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
<u>URBAN COVERS -</u>					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
<u>AGRICULTURAL COVERS -</u>					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

Pre-Development

Post-Development

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS
FOR
PERVIOUS AREA

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent (2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.
2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.
3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

RCFC & WCD
HYDROLOGY MANUAL

IMPERVIOUS COVER
FOR
DEVELOPED AREAS

Existing Condition Rationale Runoff

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version

8.0

Rational Hydrology Study

Date: 11/08/21

File:moval33.out

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Gateway Heights
Offsite Drainage
Area A - 100yr Peak Runoff
-----

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***** Hydrology Study Control Information *****
English (in-lb) Units used in input data file
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Program License Serial Number 6232
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Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

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Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Riverside-Foothill] area used.

- 10 year storm 10 minute intensity = 2.140(In/Hr)
- 10 year storm 60 minute intensity = 0.800(In/Hr)
- 100 year storm 10 minute intensity = 3.210(In/Hr)
- 100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
 Calculated rainfall intensity data:
 1 hour intensity = 1.200(In/Hr)
 Slope of intensity duration curve = 0.5500

```

++++
++++
Process from Point/Station      101.000 to Point/Station
102.000
**** INITIAL AREA EVALUATION ****

```

```

-----
Initial area flow distance = 714.000(Ft.)
Top (of initial area) elevation = 2940.000(Ft.)
Bottom (of initial area) elevation = 2520.000(Ft.)
Difference in elevation = 420.000(Ft.)

```

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Slope = 0.58824 s(percent)= 58.82
 TC = k(0.530)*[(length^3)/(elevation change)]^0.2
 Initial area time of concentration = 8.163 min.
 Rainfall intensity = 3.595(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.885
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 1.000
 RI index for soil(AMC 3) = 95.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 22.584(CFS)
 Total initial stream area = 7.100(Ac.)
 Pervious area fraction = 1.000

++++
 +-----+
 Process from Point/Station 102.000 to Point/Station
 103.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

 Estimated mean flow rate at midpoint of channel = 42.273(CFS)
 Depth of flow = 0.587(Ft.), Average velocity = 4.912(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :
 Point number 'X' coordinate 'Y' coordinate
 1 0.00 1.00
 2 25.00 0.00
 3 50.00 1.00
 Manning's 'N' friction factor = 0.035

 Sub-Channel flow = 42.273(CFS)
 ' ' flow top width = 29.337(Ft.)
 ' ' velocity= 4.912(Ft/s)
 ' ' area = 8.607(Sq.Ft)
 ' ' Froude number = 1.598

 Upstream point elevation = 2520.000(Ft.)
 Downstream point elevation = 2460.000(Ft.)
 Flow length = 873.000(Ft.)
 Travel time = 2.96 min.
 Time of concentration = 11.13 min.
 Depth of flow = 0.587(Ft.)
 Average velocity = 4.912(Ft/s)
 Total irregular channel flow = 42.273(CFS)
 Irregular channel normal depth above invert elev. = 0.587(Ft.)
 Average velocity of channel(s) = 4.912(Ft/s)
 Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.882
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 1.000
 RI index for soil(AMC 3) = 95.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Rainfall intensity = 3.032(In/Hr) for a 100.0 year storm
Subarea runoff = 39.314(CFS) for 14.700(Ac.)
Total runoff = 61.898(CFS) Total area = 21.800(Ac.)
Depth of flow = 0.677(Ft.), Average velocity = 5.403(Ft/s)

++++
Process from Point/Station 102.000 to Point/Station
103.000
**** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area = 21.800(Ac.)
Runoff from this stream = 61.898(CFS)
Time of concentration = 11.13 min.
Rainfall intensity = 3.032(In/Hr)
Program is now starting with Main Stream No. 2

++++
Process from Point/Station 201.000 to Point/Station
202.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 915.000(Ft.)
Top (of initial area) elevation = 2910.000(Ft.)
Bottom (of initial area) elevation = 2680.000(Ft.)
Difference in elevation = 230.000(Ft.)
Slope = 0.25137 s(percent)= 25.14
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.685 min.
Rainfall intensity = 3.100(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.883
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3) = 95.60
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 22.706(CFS)
Total initial stream area = 8.300(Ac.)
Pervious area fraction = 1.000

++++
Process from Point/Station 202.000 to Point/Station
203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 36.349(CFS)
Depth of flow = 0.412(Ft.), Average velocity = 8.585(Ft/s)
***** Irregular Channel Data *****

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)


```

-----
Information entered for subchannel number 1 :
Point number      'X' coordinate      'Y' coordinate
      1              0.00              1.00
      2              25.00             0.00
      3              50.00             1.00
Manning's 'N' friction factor = 0.035
-----

```

```

Sub-Channel flow = 36.350(CFS)
'   '   flow top width = 20.577(Ft.)
'   '   velocity= 8.585(Ft/s)
'   '   area = 4.234(Sq.Ft)
'   '   Froude number = 3.335
-----

```

```

Upstream point elevation = 2680.000(Ft.)
Downstream point elevation = 2460.000(Ft.)
Flow length = 653.000(Ft.)
Travel time = 1.27 min.
Time of concentration = 11.95 min.
Depth of flow = 0.412(Ft.)
Average velocity = 8.585(Ft/s)
Total irregular channel flow = 36.349(CFS)
Irregular channel normal depth above invert elev. = 0.412(Ft.)
Average velocity of channel(s) = 8.585(Ft/s)
Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.881
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3) = 95.60
Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 2.914(In/Hr) for a 100.0 year storm
Subarea runoff = 27.230(CFS) for 10.600(Ac.)
Total runoff = 49.936(CFS) Total area = 18.900(Ac.)
Depth of flow = 0.464(Ft.), Average velocity = 9.294(Ft/s)
-----

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```

++++
Process from Point/Station 202.000 to Point/Station
203.000
**** CONFLUENCE OF MAIN STREAMS ****
-----

```

```

The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area = 18.900(Ac.)
Runoff from this stream = 49.936(CFS)
Time of concentration = 11.95 min.
Rainfall intensity = 2.914(In/Hr)
Summary of stream data:

```

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	61.898	11.13	3.032
2	49.936	11.95	2.914

Largest stream flow has longer or shorter time of concentration

$$Q_p = 61.898 + \text{sum of} \\ Q_a \quad T_b/T_a \\ 49.936 * \quad 0.931 = \quad 46.478 \\ Q_p = \quad 108.376$$

Total of 2 main streams to confluence:

Flow rates before confluence point:

61.898 49.936

Area of streams before confluence:

21.800 18.900

Results of confluence:

Total flow rate = 108.376(CFS)

Time of concentration = 11.125 min.

Effective stream area after confluence = 40.700(Ac.)

++++
 +-----+
 Process from Point/Station 103.000 to Point/Station
 104.000
 ***** IRREGULAR CHANNEL FLOW TRAVEL TIME *****

 Estimated mean flow rate at midpoint of channel = 158.384(CFS)
 Depth of flow = 0.910(Ft.), Average velocity = 15.287(Ft/s)
 ***** Irregular Channel Data *****

Information entered for subchannel number 1 :

Point number	'X' coordinate	'Y' coordinate
1	0.00	2.00
2	25.00	0.00
3	50.00	2.00

Manning's 'N' friction factor = 0.035

 Sub-Channel flow = 158.384(CFS)
 ' ' flow top width = 22.761(Ft.)
 ' ' velocity= 15.287(Ft/s)
 ' ' area = 10.361(Sq.Ft)
 ' ' Froude number = 3.993

Upstream point elevation = 2460.000(Ft.)
 Downstream point elevation = 1680.000(Ft.)
 Flow length = 2098.000(Ft.)
 Travel time = 2.29 min.
 Time of concentration = 13.41 min.
 Depth of flow = 0.910(Ft.)
 Average velocity = 15.287(Ft/s)
 Total irregular channel flow = 158.384(CFS)
 Irregular channel normal depth above invert elev. = 0.910(Ft.)
 Average velocity of channel(s) = 15.287(Ft/s)
 Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.880
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 1.000

RI index for soil(AMC 3) = 95.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 2.735(In/Hr) for a 100.0 year storm
 Subarea runoff = 99.928(CFS) for 41.500(Ac.)
 Total runoff = 208.305(CFS) Total area = 82.200(Ac.)
 Depth of flow = 1.009(Ft.), Average velocity = 16.370(Ft/s)

++++
 +-----+
 105.000 Process from Point/Station 104.000 to Point/Station
 ***** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION *****

Top of natural channel elevation = 1680.000(Ft.)
 End of natural channel elevation = 1584.000(Ft.)
 Length of natural channel = 1205.000(Ft.)
 Estimated mean flow rate at midpoint of channel = 211.867(CFS)

Natural valley channel type used
 L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
 Velocity using mean channel flow = 16.85(Ft/s)

Correction to map slope used on extremely rugged channels with
 drops and waterfalls (Plate D-6.2)
 Normal channel slope = 0.0797
 Corrected/adjusted channel slope = 0.0797
 Travel time = 1.19 min. TC = 14.60 min.

Adding area flow to channel
 UNDEVELOPED (fair cover) subarea
 Runoff Coefficient = 0.854
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 90.40
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 2.610(In/Hr) for a 100.0 year storm
 Subarea runoff = 6.266(CFS) for 2.812(Ac.)
 Total runoff = 214.571(CFS) Total area = 85.012(Ac.)
 End of computations, total study area = 85.01 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
 Area averaged RI index number = 88.7

Slope = 0.30000 s(percent)= 30.00
 TC = k(0.530)*[(length^3)/(elevation change)]^0.2
 Initial area time of concentration = 10.687 min.
 Rainfall intensity = 3.100(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.883
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 1.000
 RI index for soil(AMC 3) = 95.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 25.439(CFS)
 Total initial stream area = 9.300(Ac.)
 Pervious area fraction = 1.000

+++++

Process from Point/Station 302.000 to Point/Station
 303.000

**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

 Estimated mean flow rate at midpoint of channel = 43.224(CFS)
 Depth of flow = 0.429(Ft.), Average velocity = 9.408(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :
 Point number 'X' coordinate 'Y' coordinate
 1 0.00 1.00
 2 25.00 0.00
 3 50.00 1.00
 Manning's 'N' friction factor = 0.035

 Sub-Channel flow = 43.224(CFS)
 ' ' flow top width = 21.435(Ft.)
 ' ' velocity= 9.408(Ft/s)
 ' ' area = 4.595(Sq.Ft)
 ' ' Froude number = 3.581

 Upstream point elevation = 2680.000(Ft.)
 Downstream point elevation = 2280.000(Ft.)
 Flow length = 1044.000(Ft.)
 Travel time = 1.85 min.
 Time of concentration = 12.54 min.
 Depth of flow = 0.429(Ft.)
 Average velocity = 9.408(Ft/s)
 Total irregular channel flow = 43.224(CFS)
 Irregular channel normal depth above invert elev. = 0.429(Ft.)
 Average velocity of channel(s) = 9.408(Ft/s)
 Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.881
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 1.000
 RI index for soil(AMC 3) = 95.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Rainfall intensity = 2.839(In/Hr) for a 100.0 year storm
Subarea runoff = 35.515(CFS) for 14.200(Ac.)
Total runoff = 60.954(CFS) Total area = 23.500(Ac.)
Depth of flow = 0.488(Ft.), Average velocity = 10.252(Ft/s)

++++
Process from Point/Station 303.000 to Point/Station
304.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 75.784(CFS)
Depth of flow = 0.511(Ft.), Average velocity = 11.595(Ft/s)
***** Irregular Channel Data *****

Information entered for subchannel number 1 :
Point number 'X' coordinate 'Y' coordinate
1 0.00 1.00
2 25.00 0.00
3 50.00 1.00
Manning's 'N' friction factor = 0.035

Sub-Channel flow = 75.784(CFS)
' ' flow top width = 25.566(Ft.)
' ' velocity= 11.595(Ft/s)
' ' area = 6.536(Sq.Ft)
' ' Froude number = 4.041

Upstream point elevation = 2280.000(Ft.)
Downstream point elevation = 1680.000(Ft.)
Flow length = 1304.000(Ft.)
Travel time = 1.87 min.
Time of concentration = 14.41 min.
Depth of flow = 0.511(Ft.)
Average velocity = 11.595(Ft/s)
Total irregular channel flow = 75.784(CFS)
Irregular channel normal depth above invert elev. = 0.511(Ft.)
Average velocity of channel(s) = 11.595(Ft/s)

Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.879
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
RI index for soil(AMC 3) = 95.60
Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 2.630(In/Hr) for a 100.0 year storm
Subarea runoff = 29.602(CFS) for 12.800(Ac.)
Total runoff = 90.556(CFS) Total area = 36.300(Ac.)
Depth of flow = 0.547(Ft.), Average velocity = 12.123(Ft/s)

++++
Process from Point/Station 304.000 to Point/Station
305.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Top of natural channel elevation = 1680.000(Ft.)
 End of natural channel elevation = 1620.000(Ft.)
 Length of natural channel = 518.000(Ft.)
 Estimated mean flow rate at midpoint of channel = 92.427(CFS)

Natural valley channel type used
 L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
 Velocity using mean channel flow = 15.78(Ft/s)

Correction to map slope used on extremely rugged channels with
 drops and waterfalls (Plate D-6.2)
 Normal channel slope = 0.1158
 Corrected/adjusted channel slope = 0.1158
 Travel time = 0.55 min. TC = 14.96 min.

Adding area flow to channel
 UNDEVELOPED (fair cover) subarea
 Runoff Coefficient = 0.853
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 90.40
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 2.576(In/Hr) for a 100.0 year storm
 Subarea runoff = 3.297(CFS) for 1.500(Ac.)
 Total runoff = 93.853(CFS) Total area = 37.800(Ac.)

++++
 +++++
 Process from Point/Station 305.000 to Point/Station
 306.000
 **** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1620.000(Ft.)
 End of natural channel elevation = 1600.000(Ft.)
 Length of natural channel = 313.000(Ft.)
 Estimated mean flow rate at midpoint of channel = 95.467(CFS)

Natural valley channel type used
 L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
 Velocity using mean channel flow = 11.83(Ft/s)

Correction to map slope used on extremely rugged channels with
 drops and waterfalls (Plate D-6.2)
 Normal channel slope = 0.0639
 Corrected/adjusted channel slope = 0.0639
 Travel time = 0.44 min. TC = 15.40 min.

Adding area flow to channel
 UNDEVELOPED (fair cover) subarea
 Runoff Coefficient = 0.852

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 90.40
Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 2.535(In/Hr) for a 100.0 year storm
Subarea runoff = 2.810(CFS) for 1.300(Ac.)
Total runoff = 96.662(CFS) Total area = 39.100(Ac.)
End of computations, total study area = 39.10 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged RI index number = 88.3

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version

8.0

Rational Hydrology Study

Date: 11/08/21

File:moval333.out

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Gateway Heights
Offsite Drainage
Area D - 100yr Peak Runoff
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***** Hydrology Study Control Information *****
English (in-lb) Units used in input data file
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Program License Serial Number 6232
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Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

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Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Riverside-Foothill] area used.

- 10 year storm 10 minute intensity = 2.140(In/Hr)
- 10 year storm 60 minute intensity = 0.800(In/Hr)
- 100 year storm 10 minute intensity = 3.210(In/Hr)
- 100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
 Calculated rainfall intensity data:
 1 hour intensity = 1.200(In/Hr)
 Slope of intensity duration curve = 0.5500

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Process from Point/Station      401.000 to Point/Station
402.000
**** INITIAL AREA EVALUATION ****

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-----
Initial area flow distance = 760.000(Ft.)
Top (of initial area) elevation = 2340.000(Ft.)
Bottom (of initial area) elevation = 1930.000(Ft.)
Difference in elevation = 410.000(Ft.)

```

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Slope = 0.53947 s(percent)= 53.95
 TC = k(0.530)*[(length^3)/(elevation change)]^0.2
 Initial area time of concentration = 8.515 min.
 Rainfall intensity = 3.512(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.885
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 1.000
 RI index for soil(AMC 3) = 95.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 6.027(CFS)
 Total initial stream area = 1.940(Ac.)
 Pervious area fraction = 1.000

++++
 +-----+
 Process from Point/Station 402.000 to Point/Station
 403.000
 **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

 Estimated mean flow rate at midpoint of channel = 16.393(CFS)
 Depth of flow = 0.297(Ft.), Average velocity = 7.453(Ft/s)
 ***** Irregular Channel Data *****

 Information entered for subchannel number 1 :
 Point number 'X' coordinate 'Y' coordinate
 1 0.00 1.00
 2 25.00 0.00
 3 50.00 1.00
 Manning's 'N' friction factor = 0.035

 Sub-Channel flow = 16.393(CFS)
 ' ' flow top width = 14.830(Ft.)
 ' ' velocity= 7.453(Ft/s)
 ' ' area = 2.199(Sq.Ft)
 ' ' Froude number = 3.411

 Upstream point elevation = 1930.000(Ft.)
 Downstream point elevation = 1660.000(Ft.)
 Flow length = 687.000(Ft.)
 Travel time = 1.54 min.
 Time of concentration = 10.05 min.
 Depth of flow = 0.297(Ft.)
 Average velocity = 7.453(Ft/s)
 Total irregular channel flow = 16.393(CFS)
 Irregular channel normal depth above invert elev. = 0.297(Ft.)
 Average velocity of channel(s) = 7.453(Ft/s)
 Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.883
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 1.000
 RI index for soil(AMC 3) = 95.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000

Rainfall intensity = 3.206(In/Hr) for a 100.0 year storm
Subarea runoff = 20.666(CFS) for 7.300(Ac.)
Total runoff = 26.693(CFS) Total area = 9.240(Ac.)
Depth of flow = 0.356(Ft.), Average velocity = 8.420(Ft/s)

++++
Process from Point/Station 403.000 to Point/Station
305.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1660.000(Ft.)
End of natural channel elevation = 1620.000(Ft.)
Length of natural channel = 402.000(Ft.)
Estimated mean flow rate at midpoint of channel = 29.582(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow = 10.52(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
Normal channel slope = 0.0995
Corrected/adjusted channel slope = 0.0995
Travel time = 0.64 min. TC = 10.69 min.

Adding area flow to channel
UNDEVELOPED (fair cover) subarea
Runoff Coefficient = 0.861
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 90.40
Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 3.099(In/Hr) for a 100.0 year storm
Subarea runoff = 5.335(CFS) for 2.000(Ac.)
Total runoff = 32.028(CFS) Total area = 11.240(Ac.)
End of computations, total study area = 11.24 (Ac.)

The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number = 87.2

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Riverside County Rational Hydrology Program

8.0 CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version
Rational Hydrology Study Date: 11/08/21
File:moval334.out

Gateway Heights
Offsite Drainage
Area E - 100yr Runoff

***** Hydrology Study Control Information *****
English (in-lb) Units used in input data file

Program License Serial Number 6232

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Riverside-Foothill] area used.
10 year storm 10 minute intensity = 2.140(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.210(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5500

++++
++++
Process from Point/Station 501.000 to Point/Station
502.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 882.000(Ft.)
Top (of initial area) elevation = 2160.000(Ft.)
Bottom (of initial area) elevation = 1680.000(Ft.)
Difference in elevation = 480.000(Ft.)

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Slope = 0.54422 s(percent)= 54.42
 TC = k(0.530)*[(length^3)/(elevation change)]^0.2
 Initial area time of concentration = 9.022 min.
 Rainfall intensity = 3.402(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.884
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 1.000
 RI index for soil(AMC 3) = 95.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 7.820(CFS)
 Total initial stream area = 2.600(Ac.)
 Pervious area fraction = 1.000

++++
 ++++++

Process from Point/Station 502.000 to Point/Station
 503.000

**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1680.000(Ft.)
 End of natural channel elevation = 1631.000(Ft.)
 Length of natural channel = 377.000(Ft.)
 Estimated mean flow rate at midpoint of channel = 11.730(CFS)

Natural valley channel type used
 L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
 Velocity using mean channel flow = 9.38(Ft/s)

Correction to map slope used on extremely rugged channels with
 drops and waterfalls (Plate D-6.2)
 Normal channel slope = 0.1300
 Corrected/adjusted channel slope = 0.1300
 Travel time = 0.67 min. TC = 9.69 min.

Adding area flow to channel
 UNDEVELOPED (fair cover) subarea
 Runoff Coefficient = 0.863
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 90.40
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 3.271(In/Hr) for a 100.0 year storm
 Subarea runoff = 7.336(CFS) for 2.600(Ac.)
 Total runoff = 15.156(CFS) Total area = 5.200(Ac.)
 End of computations, total study area = 5.20 (Ac.)

The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
 Area averaged RI index number = 84.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version

8.0

Rational Hydrology Study

Date: 03/29/22

File:moval33rev.out

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Gateway Heights
Existing Conditions
Area F - 100 yr
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***** Hydrology Study Control Information *****
English (in-lb) Units used in input data file
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Program License Serial Number 6232
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Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [ Riverside-Foothill ] area used.
10 year storm 10 minute intensity = 2.140(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.210(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5500

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++++
Process from Point/Station      601.000 to Point/Station
602.000
**** INITIAL AREA EVALUATION ****

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-----
Initial area flow distance = 778.000(Ft.)
Top (of initial area) elevation = 1725.000(Ft.)
Bottom (of initial area) elevation = 1617.000(Ft.)
Difference in elevation = 108.000(Ft.)

```

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Slope = 0.13882 s(percent)= 13.88
 TC = $k(0.530)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
 Initial area time of concentration = 11.277 min.
 Rainfall intensity = 3.009(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.877
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 94.40
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 5.806(CFS)
 Total initial stream area = 2.200(Ac.)
 Pervious area fraction = 1.000
 End of computations, total study area = 2.20 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000
 Area averaged RI index number = 86.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version
8.0

Rational Hydrology Study Date: 03/29/22
File:moval33rev.out

Gateway Heights
Existing Conditions
Area G - 100 yr

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6232

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Riverside-Foothill] area used.
10 year storm 10 minute intensity = 2.140(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.210(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5500

++++
++++
Process from Point/Station 701.000 to Point/Station
702.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 388.000(Ft.)
Top (of initial area) elevation = 1646.000(Ft.)
Bottom (of initial area) elevation = 1600.000(Ft.)
Difference in elevation = 46.000(Ft.)

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Slope = 0.11856 s(percent)= 11.86
 TC = $k(0.530)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
 Initial area time of concentration = 8.811 min.
 Rainfall intensity = 3.447(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.880
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 94.40
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 1.819(CFS)
 Total initial stream area = 0.600(Ac.)
 Pervious area fraction = 1.000
 End of computations, total study area = 0.60 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000
 Area averaged RI index number = 86.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2012 Version
8.0

Rational Hydrology Study Date: 03/29/22
File:moval33rev.out

Gateway Heights
Existing Conditions
Area H - 100 yr

***** Hydrology Study Control Information *****
English (in-lb) Units used in input data file

Program License Serial Number 6232

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Riverside-Foothill] area used.
10 year storm 10 minute intensity = 2.140(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 3.210(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5500

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++++
Process from Point/Station 801.000 to Point/Station
802.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 589.000(Ft.)
Top (of initial area) elevation = 1678.000(Ft.)
Bottom (of initial area) elevation = 1587.000(Ft.)
Difference in elevation = 91.000(Ft.)

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Slope = 0.15450 s(percent)= 15.45
TC = $k(0.530)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 9.875 min.
Rainfall intensity = 3.237(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.879
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 94.40
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 5.688(CFS)
Total initial stream area = 2.000(Ac.)
Pervious area fraction = 1.000
End of computations, total study area = 2.00 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged RI index number = 86.0

Slope = 0.09501 s(percent)= 9.50
 TC = $k(0.530)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
 Initial area time of concentration = 12.430 min.
 Rainfall intensity = 2.852(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.876
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 94.40
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 7.993(CFS)
 Total initial stream area = 3.200(Ac.)
 Pervious area fraction = 1.000
 End of computations, total study area = 3.20 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000
 Area averaged RI index number = 86.0

Existing Condition SCS Hydrograph Runoff

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preal2.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

--

Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
0.009 Sq. Mi.
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Mi.
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.185	(0.198)	0.166	0.018
2	0.17	4.20	0.235	0.198	(0.211)	0.036
3	0.25	4.40	0.246	0.198	(0.221)	0.048
4	0.33	4.80	0.268	0.198	(0.242)	0.070
5	0.42	5.20	0.291	0.198	(0.262)	0.092
6	0.50	6.20	0.347	0.198	(0.312)	0.148
7	0.58	6.80	0.380	0.198	(0.342)	0.182
8	0.67	8.80	0.492	0.198	(0.443)	0.294
9	0.75	13.90	0.777	0.198	(0.700)	0.579
10	0.83	31.40	1.756	0.198	(1.580)	1.557
11	0.92	7.20	0.403	0.198	(0.362)	0.204
12	1.00	3.80	0.212	(0.198)	0.191	0.021

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.3

Flood volume = Effective rainfall 0.27(In)
 times area 5.5(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.20(In)
 Total soil loss = 0.090(Ac.Ft)
 Total rainfall = 0.47(In)
 Flood volume = 5437.4 Cubic Feet
 Total soil loss = 3916.6 Cubic Feet

 Peak flow rate of this hydrograph = 5.429(CFS)

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 1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0002	0.03	Q	|	|	|
0+10	0.0011	0.12	Q	|	|	|
0+15	0.0025	0.21	Q	|	|	|
0+20	0.0045	0.29	|Q	|	|	|
0+25	0.0074	0.41	|QV	|	|	|
0+30	0.0115	0.60	| QV	|	|	|
0+35	0.0173	0.84	| Q V	|	|	|

|	0+40	0.0254	1.18	|	Q	V	|	|	|
|	0+45	0.0396	2.07	|		Q	|	V	|
|	0+50	0.0725	4.78	|			|	Q	|
|	0+55	0.1099	5.43	|			|	Q	|
|	1+ 0	0.1215	1.67	|		Q	|		|
|	1+ 5	0.1241	0.39	|	Q		|		|
V|	1+10	0.1248	0.09	|	Q		|		|
V|	1+15	0.1248	0.01	|	Q		|		|
V|	1+20	0.1248	0.00	|	Q		|		|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preal5.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

--

Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
0.009 Sq. Mi.
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Mi.
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

5.53 0.47 2.58

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.53	1.19	6.58

STORM EVENT (YEAR) = 5.00
 Area Averaged 2-Year Rainfall = 0.466(In)
 Area Averaged 100-Year Rainfall = 1.190(In)

Point rain (area averaged) = 0.636(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 0.636(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.530	84.00	0.000
Total Area Entered = 5.53(Ac.)		

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	84.0	0.198	0.000	0.198	1.000	
0.198						
Sum (F) =						
0.198						

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 Slope of intensity-duration curve for a 1 hour storm =0.5500

Unit Hydrograph
 FOOTHILL S-Curve

 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	157.948	32.675
2	0.167	315.896	53.715
3	0.250	473.844	10.920
4	0.333	631.792	2.028
5	0.417	789.740	0.662
		Sum = 100.000	Sum= 5.573

The following loss rate calculations reflect use of the minimum

calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.252	0.198	(0.227)	0.053
2	0.17	4.20	0.320	0.198	(0.288)	0.122
3	0.25	4.40	0.336	0.198	(0.302)	0.137
4	0.33	4.80	0.366	0.198	(0.329)	0.168
5	0.42	5.20	0.397	0.198	(0.357)	0.198
6	0.50	6.20	0.473	0.198	(0.426)	0.274
7	0.58	6.80	0.519	0.198	(0.467)	0.320
8	0.67	8.80	0.671	0.198	(0.604)	0.473
9	0.75	13.90	1.060	0.198	(0.954)	0.862
10	0.83	31.40	2.395	0.198	(2.155)	2.196
11	0.92	7.20	0.549	0.198	(0.494)	0.351
12	1.00	3.80	0.290	0.198	(0.261)	0.091

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.2

Flood volume = Effective rainfall 0.44(In)
 times area 5.5(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.20(In)
 Total soil loss = 0.091(Ac.Ft)
 Total rainfall = 0.64(In)
 Flood volume = 8775.2 Cubic Feet
 Total soil loss = 3982.7 Cubic Feet

 Peak flow rate of this hydrograph = 7.807(CFS)

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 1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0007	0.10	Q	|	|	|
0+10	0.0033	0.38	VQ	|	|	|
0+15	0.0078	0.65	|VQ	|	|	|
0+20	0.0132	0.80	| VQ	|	|	|
0+25	0.0199	0.96	| Q	|	|	|
0+30	0.0282	1.22	| QV	|	|	|
0+35	0.0389	1.55	| QV	|	|	|

|	0+40	0.0528	2.02	|	Q V	|	|
|	0+45	0.0750	3.22	|	| Q V	|	|
|	0+50	0.1226	6.92	|	|	|	V Q |
|	0+55	0.1764	7.81	|	|	|	| Q V
|	1+ 0	0.1948	2.67	|	Q	|	| V
|	1+ 5	0.2001	0.77	|	Q	|	|
V|	1+10	0.2013	0.18	Q	|	|	|
V|	1+15	0.2014	0.02	Q	|	|	|
V|	1+20	0.2015	0.00	Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 02/19/21 File: moval33prea110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

--
0.009 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.302	0.198	(0.272)	0.104
2	0.17	4.20	0.385	0.198	(0.346)	0.187
3	0.25	4.40	0.403	0.198	(0.363)	0.205
4	0.33	4.80	0.440	0.198	(0.396)	0.242
5	0.42	5.20	0.477	0.198	(0.429)	0.278
6	0.50	6.20	0.568	0.198	(0.511)	0.370
7	0.58	6.80	0.623	0.198	(0.561)	0.425
8	0.67	8.80	0.807	0.198	(0.726)	0.608
9	0.75	13.90	1.274	0.198	(1.147)	1.076
10	0.83	31.40	2.878	0.198	(2.590)	2.680
11	0.92	7.20	0.660	0.198	(0.594)	0.462
12	1.00	3.80	0.348	0.198	(0.313)	0.150

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.8

Flood volume = Effective rainfall 0.57(In)
 times area 5.5(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
 Total soil loss = 0.20(In)
 Total soil loss = 0.091(Ac.Ft)
 Total rainfall = 0.76(In)
 Flood volume = 11350.2 Cubic Feet
 Total soil loss = 3982.7 Cubic Feet

 Peak flow rate of this hydrograph = 9.607(CFS)

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 1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0013	0.19	Q	|	|	|
0+10	0.0058	0.65	V Q	|	|	|
0+15	0.0126	1.00	|V Q	|	|	|
0+20	0.0208	1.18	| VQ	|	|	|
0+25	0.0303	1.38	| VQ	|	|	|
0+30	0.0419	1.68	| Q	|	|	|
0+35	0.0562	2.09	| Q	|	|	|

	0+40	0.0745	2.65	|		QV	|		|
|	0+45	0.1027	4.09	|			|	VQ	|
|	0+50	0.1614	8.54	|			|		V
|	0+55	0.2276	9.61	|			|		Q
|	1+ 0	0.2512	3.43	|		Q	|		V
|	1+ 5	0.2586	1.07	|	Q		|		
V|	1+10	0.2603	0.24	Q			|		
V|	1+15	0.2605	0.03	Q			|		
V|	1+20	0.2606	0.01	Q			|		
V									

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33preall100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff
Area A

--

Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
0.009 Sq. Mi.
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Mi.

Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.471	0.086	(0.424)	0.385
2	0.17	4.20	0.600	0.086	(0.540)	0.514
3	0.25	4.40	0.628	0.086	(0.565)	0.542
4	0.33	4.80	0.685	0.086	(0.617)	0.600
5	0.42	5.20	0.743	0.086	(0.668)	0.657
6	0.50	6.20	0.885	0.086	(0.797)	0.800
7	0.58	6.80	0.971	0.086	(0.874)	0.885
8	0.67	8.80	1.257	0.086	(1.131)	1.171
9	0.75	13.90	1.985	0.086	(1.786)	1.899
10	0.83	31.40	4.484	0.086	(4.035)	4.398
11	0.92	7.20	1.028	0.086	(0.925)	0.942
12	1.00	3.80	0.543	0.086	(0.488)	0.457

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.2

Flood volume = Effective rainfall 1.10(In)
 times area 5.5(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)
 Total soil loss = 0.09(In)
 Total soil loss = 0.040(Ac.Ft)
 Total rainfall = 1.19(In)
 Flood volume = 22164.4 Cubic Feet
 Total soil loss = 1722.3 Cubic Feet

 Peak flow rate of this hydrograph = 16.211(CFS)

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 1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 5.0 10.0 15.0
 20.0

0+ 5	0.0048	0.70	VQ	|	|	|
0+10	0.0192	2.09	|V Q	|	|	|
0+15	0.0383	2.76	| V Q	|	|	|
0+20	0.0594	3.07	| V Q	|	|	|
0+25	0.0828	3.40	| Q	|	|	|
0+30	0.1095	3.87	| QV	|	|	|
0+35	0.1404	4.50	| Q |V	|	|	|

|	0+40	0.1774	5.37	|	Q	V	|	|
|	0+45	0.2299	7.62	|	|	Q	V	|
|	0+50	0.3300	14.54	|	|	|	V	Q|
|	0+55	0.4417	16.21	|	|	|	|	Q V
|	1+ 0	0.4871	6.59	|	|	Q	|	| V
|	1+ 5	0.5043	2.51	|	Q	|	|	|
V|	1+10	0.5081	0.55	|Q	|	|	|	|
V|	1+15	0.5087	0.09	Q	|	|	|	|
V|	1+20	0.5088	0.02	Q	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

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Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
0.009 Sq. Mi.
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Mi.
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.125	(0.198)	0.112	0.012
2	0.17	1.30	0.125	(0.198)	0.112	0.012
3	0.25	1.10	0.105	(0.198)	0.095	0.011
4	0.33	1.50	0.144	(0.198)	0.129	0.014
5	0.42	1.50	0.144	(0.198)	0.129	0.014
6	0.50	1.80	0.173	(0.198)	0.155	0.017
7	0.58	1.50	0.144	(0.198)	0.129	0.014
8	0.67	1.80	0.173	(0.198)	0.155	0.017
9	0.75	1.80	0.173	(0.198)	0.155	0.017
10	0.83	1.50	0.144	(0.198)	0.129	0.014
11	0.92	1.60	0.153	(0.198)	0.138	0.015
12	1.00	1.80	0.173	(0.198)	0.155	0.017
13	1.08	2.20	0.211	(0.198)	0.190	0.021
14	1.17	2.20	0.211	(0.198)	0.190	0.021
15	1.25	2.20	0.211	(0.198)	0.190	0.021
16	1.33	2.00	0.192	(0.198)	0.173	0.019
17	1.42	2.60	0.249	0.198	(0.224)	0.051
18	1.50	2.70	0.259	0.198	(0.233)	0.060
19	1.58	2.40	0.230	0.198	(0.207)	0.032
20	1.67	2.70	0.259	0.198	(0.233)	0.060
21	1.75	3.30	0.316	0.198	(0.285)	0.118
22	1.83	3.10	0.297	0.198	(0.267)	0.099
23	1.92	2.90	0.278	0.198	(0.250)	0.080
24	2.00	3.00	0.288	0.198	(0.259)	0.089
25	2.08	3.10	0.297	0.198	(0.267)	0.099
26	2.17	4.20	0.403	0.198	(0.362)	0.204
27	2.25	5.00	0.479	0.198	(0.431)	0.281
28	2.33	3.50	0.336	0.198	(0.302)	0.137
29	2.42	6.80	0.652	0.198	(0.587)	0.454
30	2.50	7.30	0.700	0.198	(0.630)	0.502
31	2.58	8.20	0.786	0.198	(0.708)	0.588
32	2.67	5.90	0.566	0.198	(0.509)	0.367
33	2.75	2.00	0.192	(0.198)	0.173	0.019
34	2.83	1.80	0.173	(0.198)	0.155	0.017
35	2.92	1.80	0.173	(0.198)	0.155	0.017
36	3.00	0.60	0.058	(0.198)	0.052	0.006

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.5

Flood volume = Effective rainfall 0.29(In)
times area 5.5(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)

Total soil loss = 0.50(In)
Total soil loss = 0.232(Ac.Ft)
Total rainfall = 0.80(In)
Flood volume = 5921.7 Cubic Feet
Total soil loss = 10117.0 Cubic Feet

Peak flow rate of this hydrograph = 2.875(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0							
0+ 5	0.0002	0.02	Q				
0+10	0.0006	0.06	Q				
0+15	0.0010	0.06	Q				
0+20	0.0015	0.07	Q				
0+25	0.0020	0.08	Q				
0+30	0.0026	0.08	Q				
0+35	0.0032	0.09	Q				
0+40	0.0038	0.09	QV				
0+45	0.0045	0.09	QV				
0+50	0.0051	0.09	QV				
0+55	0.0057	0.08	QV				
1+ 0	0.0063	0.09	QV				
1+ 5	0.0070	0.10	Q V				
1+10	0.0078	0.11	Q V				
1+15	0.0086	0.12	Q V				
1+20	0.0093	0.11	Q V				
1+25	0.0105	0.17	Q V				
1+30	0.0124	0.28	|Q V				
1+35	0.0143	0.27	|Q V				
1+40	0.0160	0.25	Q V				
1+45	0.0189	0.42	|Q V				
1+50	0.0229	0.58	| Q V				
1+55	0.0265	0.52	| Q V				
2+ 0	0.0298	0.48	|Q V				
2+ 5	0.0333	0.51	| Q V				
2+10	0.0383	0.74	| Q |V				
2+15	0.0466	1.20	| Q | V				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+20	0.0551	1.23	|	Q	|	V	|	|
|	2+25	0.0649	1.44	|	Q	|	V	|	|
|	2+30	0.0814	2.40	|		Q|	|	V	|
|	2+35	0.1012	2.88	|		|Q	|		V|
|	2+40	0.1205	2.79	|		|Q	|		V
|	2+45	0.1312	1.57	|	Q	|			V
|	2+50	0.1340	0.40	|	Q	|			
V|	2+55	0.1351	0.16	Q		|			
V|	3+ 0	0.1357	0.09	Q		|			
V|	3+ 5	0.1359	0.03	Q		|			
V|	3+10	0.1359	0.01	Q		|			
V|	3+15	0.1359	0.00	Q		|			
V|	3+20	0.1359	0.00	Q		|			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33prea35.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

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Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
0.009 Sq. Mi.
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Mi.
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.165	(0.198)	0.148	0.016
2	0.17	1.30	0.165	(0.198)	0.148	0.016
3	0.25	1.10	0.139	(0.198)	0.125	0.014
4	0.33	1.50	0.190	(0.198)	0.171	0.019
5	0.42	1.50	0.190	(0.198)	0.171	0.019
6	0.50	1.80	0.228	0.198	(0.205)	0.029
7	0.58	1.50	0.190	(0.198)	0.171	0.019
8	0.67	1.80	0.228	0.198	(0.205)	0.029
9	0.75	1.80	0.228	0.198	(0.205)	0.029
10	0.83	1.50	0.190	(0.198)	0.171	0.019
11	0.92	1.60	0.202	(0.198)	0.182	0.020
12	1.00	1.80	0.228	0.198	(0.205)	0.029
13	1.08	2.20	0.278	0.198	(0.251)	0.080
14	1.17	2.20	0.278	0.198	(0.251)	0.080
15	1.25	2.20	0.278	0.198	(0.251)	0.080
16	1.33	2.00	0.253	0.198	(0.228)	0.055
17	1.42	2.60	0.329	0.198	(0.296)	0.131
18	1.50	2.70	0.342	0.198	(0.307)	0.143
19	1.58	2.40	0.304	0.198	(0.273)	0.105
20	1.67	2.70	0.342	0.198	(0.307)	0.143
21	1.75	3.30	0.418	0.198	(0.376)	0.219
22	1.83	3.10	0.392	0.198	(0.353)	0.194
23	1.92	2.90	0.367	0.198	(0.330)	0.169
24	2.00	3.00	0.380	0.198	(0.342)	0.181
25	2.08	3.10	0.392	0.198	(0.353)	0.194
26	2.17	4.20	0.531	0.198	(0.478)	0.333
27	2.25	5.00	0.633	0.198	(0.569)	0.434
28	2.33	3.50	0.443	0.198	(0.399)	0.244
29	2.42	6.80	0.860	0.198	(0.774)	0.662
30	2.50	7.30	0.924	0.198	(0.831)	0.725
31	2.58	8.20	1.038	0.198	(0.934)	0.839
32	2.67	5.90	0.747	0.198	(0.672)	0.548
33	2.75	2.00	0.253	0.198	(0.228)	0.055
34	2.83	1.80	0.228	0.198	(0.205)	0.029
35	2.92	1.80	0.228	0.198	(0.205)	0.029
36	3.00	0.60	0.076	(0.198)	0.068	0.008

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.9

Flood volume = Effective rainfall 0.50(In)
times area 5.5(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)

Total soil loss = 0.56(In)

Total soil loss = 0.258(Ac.Ft)

Total rainfall = 1.05(In)

Flood volume = 9940.1 Cubic Feet

Total soil loss = 11228.1 Cubic Feet

Peak flow rate of this hydrograph = 4.148(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0							
0+ 5	0.0002	0.03	Q				
0+10	0.0008	0.08	Q				
0+15	0.0013	0.08	Q				
0+20	0.0019	0.09	Q				
0+25	0.0026	0.10	Q				
0+30	0.0035	0.12	Q				
0+35	0.0044	0.14	Q				
0+40	0.0053	0.13	Q				
0+45	0.0064	0.16	QV				
0+50	0.0074	0.14	QV				
0+55	0.0082	0.12	QV				
1+ 0	0.0091	0.13	QV				
1+ 5	0.0108	0.25	QV				
1+10	0.0136	0.41	|QV				
1+15	0.0166	0.44	|QV				
1+20	0.0194	0.40	|Q V				
1+25	0.0226	0.46	|Q V				
1+30	0.0274	0.70	| Q V				
1+35	0.0323	0.71	| Q V				
1+40	0.0369	0.68	| Q V				
1+45	0.0432	0.91	| Q V				
1+50	0.0509	1.11	| Q V				
1+55	0.0581	1.04	| Q V				
2+ 0	0.0649	0.98	| Q |V				
2+ 5	0.0719	1.03	| Q | V				
2+10	0.0811	1.32	| Q | V				
2+15	0.0944	1.93	| Q | V				

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

|	2+20	0.1080	1.98	|	Q	|	V	|	|
|	2+25	0.1235	2.25	|	Q	|	|	V	|
|	2+30	0.1477	3.51	|	|	Q	|	V	|
|	2+35	0.1763	4.15	|	|	Q	|	|	V
|	2+40	0.2041	4.04	|	|	Q	|	|	V
|	2+45	0.2203	2.36	|	Q	|	|	|	V
|	2+50	0.2249	0.67	|	Q	|	|	|	|
V|	2+55	0.2268	0.27	|	Q	|	|	|	|
V|	3+ 0	0.2278	0.15	Q	|	|	|	|	|
V|	3+ 5	0.2281	0.05	Q	|	|	|	|	|
V|	3+10	0.2282	0.01	Q	|	|	|	|	|
V|	3+15	0.2282	0.00	Q	|	|	|	|	|
V|	3+20	0.2282	0.00	Q	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33prea310

Unit Hydrograph Analysis

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Study date 02/19/21 File: moval 33prea310.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
0.009 Sq. Mi. Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065 Mi.
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
5.53	0.80	4.42

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
5.53	1.89	10.45

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.799(In)
Area Averaged 100-Year Rainfall = 1.890(In)

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33prea310

Point rain (area averaged) = 1.248(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.248(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 5.530 84.00 0.000
 Total Area Entered = 5.53(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
						Sum (F) = 0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of Lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	157.948	32.675
2	0.167	315.896	53.715
3	0.250	473.844	10.920
4	0.333	631.792	2.028
5	0.417	789.740	0.662
		Sum = 100.000	Sum= 5.573

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	1.30	(0.198)	0.175	0.019
2	0.17	1.30	(0.198)	0.175	0.019
3	0.25	1.10	(0.198)	0.148	0.016
4	0.33	1.50	0.198	(0.202)	0.026
5	0.42	1.50	0.198	(0.202)	0.026
6	0.50	1.80	0.198	(0.243)	0.071
7	0.58	1.50	0.198	(0.202)	0.026
8	0.67	1.80	0.198	(0.243)	0.071
9	0.75	1.80	0.198	(0.243)	0.071
10	0.83	1.50	0.198	(0.202)	0.026
11	0.92	1.60	0.198	(0.216)	0.041
12	1.00	1.80	0.198	(0.243)	0.071
13	1.08	2.20	0.198	(0.296)	0.131
14	1.17	2.20	0.198	(0.296)	0.131
15	1.25	2.20	0.198	(0.296)	0.131
16	1.33	2.00	0.198	(0.270)	0.101
17	1.42	2.60	0.198	(0.350)	0.191
18	1.50	2.70	0.198	(0.364)	0.206
19	1.58	2.40	0.198	(0.323)	0.161
20	1.67	2.70	0.198	(0.364)	0.206

				moval 33prea310		
21	1.75	3.30	0.494	0.198	(0.445)	0.296
22	1.83	3.10	0.464	0.198	(0.418)	0.266
23	1.92	2.90	0.434	0.198	(0.391)	0.236
24	2.00	3.00	0.449	0.198	(0.404)	0.251
25	2.08	3.10	0.464	0.198	(0.418)	0.266
26	2.17	4.20	0.629	0.198	(0.566)	0.430
27	2.25	5.00	0.749	0.198	(0.674)	0.550
28	2.33	3.50	0.524	0.198	(0.472)	0.326
29	2.42	6.80	1.018	0.198	(0.916)	0.820
30	2.50	7.30	1.093	0.198	(0.984)	0.895
31	2.58	8.20	1.228	0.198	(1.105)	1.029
32	2.67	5.90	0.883	0.198	(0.795)	0.685
33	2.75	2.00	0.299	0.198	(0.270)	0.101
34	2.83	1.80	0.270	0.198	(0.243)	0.071
35	2.92	1.80	0.270	0.198	(0.243)	0.071
36	3.00	0.60	0.090	(0.198)	0.081	0.009

Sum = 100.0 (Loss Rate Not Used) Sum = 8.0

Flood volume = Effective rainfall times area = $5.5(Ac.) / [(In)/(Ft.)] = 0.67(In) = 0.3(Ac. Ft)$
 Total soil loss = 0.58(In)
 Total soil loss = 0.266(Ac. Ft)
 Total rainfall = 1.25(In)
 Flood volume = 13458.7 Cubic Feet
 Total soil loss = 11589.8 Cubic Feet

 Peak flow rate of this hydrograph = 5.112(CFS)

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3 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac. Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.04	Q				
0+10	0.0009	0.09	Q				
0+15	0.0016	0.10	Q				
0+20	0.0023	0.11	Q				
0+25	0.0033	0.14	Q				
0+30	0.0049	0.23	Q				
0+35	0.0068	0.28	VQ				
0+40	0.0086	0.26	Q				
0+45	0.0111	0.37	Q				
0+50	0.0132	0.31	Q				
0+55	0.0146	0.21	QV				
1+ 0	0.0166	0.28	QV				
1+ 5	0.0199	0.48	QV				
1+10	0.0246	0.68	QV				
1+15	0.0295	0.72	QV				
1+20	0.0342	0.67	Q V				
1+25	0.0393	0.75	Q V				
1+30	0.0464	1.03	Q V				
1+35	0.0536	1.04	Q V				
1+40	0.0605	1.01	Q V				
1+45	0.0694	1.28	Q V				
1+50	0.0799	1.52	Q V				
1+55	0.0897	1.44	Q V				
2+ 0	0.0992	1.37	Q V				
2+ 5	0.1089	1.42	Q V				
2+10	0.1211	1.77	Q V				

			moval 33	prea310				
2+15	0. 1383	2. 49		Q	V			
2+20	0. 1558	2. 54		Q	V			
2+25	0. 1755	2. 86		Q	V			
2+30	0. 2055	4. 36		Q	Q	V		
2+35	0. 2408	5. 11		Q	Q	V		
2+40	0. 2751	4. 98		Q	Q	V		
2+45	0. 2957	2. 99		Q				
2+50	0. 3026	1. 00		Q				
2+55	0. 3061	0. 52	Q	Q				V
3+ 0	0. 3083	0. 31	Q					V
3+ 5	0. 3088	0. 08	Q					V
3+10	0. 3089	0. 02	Q					V
3+15	0. 3090	0. 00	Q					V
3+20	0. 3090	0. 00	Q					V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33prea3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff
Area A

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Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
0.009 Sq. Mi.
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Mi.
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.295	0.086	(0.265)	0.209
2	0.17	1.30	0.295	0.086	(0.265)	0.209
3	0.25	1.10	0.249	0.086	(0.225)	0.164
4	0.33	1.50	0.340	0.086	(0.306)	0.254
5	0.42	1.50	0.340	0.086	(0.306)	0.254
6	0.50	1.80	0.408	0.086	(0.367)	0.322
7	0.58	1.50	0.340	0.086	(0.306)	0.254
8	0.67	1.80	0.408	0.086	(0.367)	0.322
9	0.75	1.80	0.408	0.086	(0.367)	0.322
10	0.83	1.50	0.340	0.086	(0.306)	0.254
11	0.92	1.60	0.363	0.086	(0.327)	0.277
12	1.00	1.80	0.408	0.086	(0.367)	0.322
13	1.08	2.20	0.499	0.086	(0.449)	0.413
14	1.17	2.20	0.499	0.086	(0.449)	0.413
15	1.25	2.20	0.499	0.086	(0.449)	0.413
16	1.33	2.00	0.454	0.086	(0.408)	0.368
17	1.42	2.60	0.590	0.086	(0.531)	0.504
18	1.50	2.70	0.612	0.086	(0.551)	0.527
19	1.58	2.40	0.544	0.086	(0.490)	0.459
20	1.67	2.70	0.612	0.086	(0.551)	0.527
21	1.75	3.30	0.748	0.086	(0.674)	0.663
22	1.83	3.10	0.703	0.086	(0.633)	0.617
23	1.92	2.90	0.658	0.086	(0.592)	0.572
24	2.00	3.00	0.680	0.086	(0.612)	0.595
25	2.08	3.10	0.703	0.086	(0.633)	0.617
26	2.17	4.20	0.953	0.086	(0.857)	0.867
27	2.25	5.00	1.134	0.086	(1.021)	1.048
28	2.33	3.50	0.794	0.086	(0.714)	0.708
29	2.42	6.80	1.542	0.086	(1.388)	1.456
30	2.50	7.30	1.656	0.086	(1.490)	1.570
31	2.58	8.20	1.860	0.086	(1.674)	1.774
32	2.67	5.90	1.338	0.086	(1.204)	1.252
33	2.75	2.00	0.454	0.086	(0.408)	0.368
34	2.83	1.80	0.408	0.086	(0.367)	0.322
35	2.92	1.80	0.408	0.086	(0.367)	0.322
36	3.00	0.60	0.136	0.086	(0.122)	0.050

(Loss Rate Not Used)

Sum = 100.0 Sum = 19.6

Flood volume = Effective rainfall 1.63(In)
times area 5.5(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft)

Total soil loss = 0.26(In)
Total soil loss = 0.119(Ac.Ft)
Total rainfall = 1.89(In)
Flood volume = 32771.7 Cubic Feet
Total soil loss = 5167.0 Cubic Feet

Peak flow rate of this hydrograph = 8.939(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0							
0+ 5	0.0026	0.38	VQ				
0+10	0.0096	1.01	V Q				
0+15	0.0168	1.05	V Q				
0+20	0.0244	1.10	|V Q				
0+25	0.0338	1.36	|V Q				
0+30	0.0443	1.53	| V Q				
0+35	0.0554	1.62	| V Q				
0+40	0.0663	1.58	| V Q				
0+45	0.0784	1.75	| V Q				
0+50	0.0899	1.67	| V Q				
0+55	0.1003	1.51	| VQ				
1+ 0	0.1115	1.62	| VQ				
1+ 5	0.1247	1.93	| VQ				
1+10	0.1401	2.23	| VQ				
1+15	0.1558	2.29	| VQ|				
1+20	0.1711	2.22	| QV|				
1+25	0.1872	2.33	| Q|				
1+30	0.2061	2.75	| VQ				
1+35	0.2253	2.78	| Q				
1+40	0.2440	2.72	| Q V				
1+45	0.2657	3.14	| Q V				
1+50	0.2898	3.50	| QV				
1+55	0.3130	3.37	| Q V				
2+ 0	0.3355	3.27	| Q V				
2+ 5	0.3585	3.35	| Q V|				
2+10	0.3853	3.88	| Q V				
2+15	0.4195	4.97	| Q| V				

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

|	2+20	0.4543	5.05	|	|	Q	V	|
|	2+25	0.4924	5.53	|	|	|	Q	V
|	2+30	0.5461	7.80	|	|	|	|	V|Q
|	2+35	0.6077	8.94	|	|	|	|	V
|	2+40	0.6679	8.74	|	|	|	|	QV
|	2+45	0.7074	5.73	|	|	|	Q	|
|	2+50	0.7260	2.71	|	Q	|	|	V
|	2+55	0.7397	1.98	|	Q	|	|	|
V|	3+ 0	0.7489	1.34	|	Q	|	|	|
V|	3+ 5	0.7517	0.40	|Q	|	|	|	|
V|	3+10	0.7522	0.08	Q	|	|	|	|
V|	3+15	0.7523	0.02	Q	|	|	|	|
V|	3+20	0.7523	0.00	Q	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33prea62.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

--
0.009 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.065	(0.198)	0.059	0.007
2	0.17	0.60	0.078	(0.198)	0.071	0.008
3	0.25	0.60	0.078	(0.198)	0.071	0.008
4	0.33	0.60	0.078	(0.198)	0.071	0.008
5	0.42	0.60	0.078	(0.198)	0.071	0.008
6	0.50	0.70	0.092	(0.198)	0.082	0.009
7	0.58	0.70	0.092	(0.198)	0.082	0.009
8	0.67	0.70	0.092	(0.198)	0.082	0.009
9	0.75	0.70	0.092	(0.198)	0.082	0.009
10	0.83	0.70	0.092	(0.198)	0.082	0.009
11	0.92	0.70	0.092	(0.198)	0.082	0.009
12	1.00	0.80	0.105	(0.198)	0.094	0.010
13	1.08	0.80	0.105	(0.198)	0.094	0.010
14	1.17	0.80	0.105	(0.198)	0.094	0.010
15	1.25	0.80	0.105	(0.198)	0.094	0.010
16	1.33	0.80	0.105	(0.198)	0.094	0.010
17	1.42	0.80	0.105	(0.198)	0.094	0.010
18	1.50	0.80	0.105	(0.198)	0.094	0.010
19	1.58	0.80	0.105	(0.198)	0.094	0.010
20	1.67	0.80	0.105	(0.198)	0.094	0.010
21	1.75	0.80	0.105	(0.198)	0.094	0.010
22	1.83	0.80	0.105	(0.198)	0.094	0.010
23	1.92	0.80	0.105	(0.198)	0.094	0.010
24	2.00	0.90	0.118	(0.198)	0.106	0.012
25	2.08	0.80	0.105	(0.198)	0.094	0.010
26	2.17	0.90	0.118	(0.198)	0.106	0.012
27	2.25	0.90	0.118	(0.198)	0.106	0.012
28	2.33	0.90	0.118	(0.198)	0.106	0.012
29	2.42	0.90	0.118	(0.198)	0.106	0.012
30	2.50	0.90	0.118	(0.198)	0.106	0.012
31	2.58	0.90	0.118	(0.198)	0.106	0.012
32	2.67	0.90	0.118	(0.198)	0.106	0.012
33	2.75	1.00	0.131	(0.198)	0.118	0.013
34	2.83	1.00	0.131	(0.198)	0.118	0.013
35	2.92	1.00	0.131	(0.198)	0.118	0.013
36	3.00	1.00	0.131	(0.198)	0.118	0.013
37	3.08	1.00	0.131	(0.198)	0.118	0.013
38	3.17	1.10	0.144	(0.198)	0.129	0.014
39	3.25	1.10	0.144	(0.198)	0.129	0.014
40	3.33	1.10	0.144	(0.198)	0.129	0.014
41	3.42	1.20	0.157	(0.198)	0.141	0.016
42	3.50	1.30	0.170	(0.198)	0.153	0.017
43	3.58	1.40	0.183	(0.198)	0.165	0.018
44	3.67	1.40	0.183	(0.198)	0.165	0.018
45	3.75	1.50	0.196	(0.198)	0.177	0.020
46	3.83	1.50	0.196	(0.198)	0.177	0.020
47	3.92	1.60	0.209	(0.198)	0.188	0.021
48	4.00	1.60	0.209	(0.198)	0.188	0.021
49	4.08	1.70	0.222	0.198	(0.200)	0.024
50	4.17	1.80	0.235	0.198	(0.212)	0.037
51	4.25	1.90	0.249	0.198	(0.224)	0.050
52	4.33	2.00	0.262	0.198	(0.235)	0.063
53	4.42	2.10	0.275	0.198	(0.247)	0.076
54	4.50	2.10	0.275	0.198	(0.247)	0.076
55	4.58	2.20	0.288	0.198	(0.259)	0.089
56	4.67	2.30	0.301	0.198	(0.271)	0.102
57	4.75	2.40	0.314	0.198	(0.283)	0.116

58	4.83	2.40	0.314	0.198	(0.283)	0.116
59	4.92	2.50	0.327	0.198	(0.294)	0.129
60	5.00	2.60	0.340	0.198	(0.306)	0.142
61	5.08	3.10	0.405	0.198	(0.365)	0.207
62	5.17	3.60	0.471	0.198	(0.424)	0.272
63	5.25	3.90	0.510	0.198	(0.459)	0.312
64	5.33	4.20	0.549	0.198	(0.494)	0.351
65	5.42	4.70	0.615	0.198	(0.553)	0.416
66	5.50	5.60	0.732	0.198	(0.659)	0.534
67	5.58	1.90	0.249	0.198	(0.224)	0.050
68	5.67	0.90	0.118	(0.198)	0.106	0.012
69	5.75	0.60	0.078	(0.198)	0.071	0.008
70	5.83	0.50	0.065	(0.198)	0.059	0.007
71	5.92	0.30	0.039	(0.198)	0.035	0.004
72	6.00	0.20	0.026	(0.198)	0.024	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.8

Flood volume = Effective rainfall 0.31(In)
 times area 5.5(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.78(In)
 Total soil loss = 0.357(Ac.Ft)
 Total rainfall = 1.09(In)
 Flood volume = 6319.0 Cubic Feet
 Total soil loss = 15561.2 Cubic Feet

 -- Peak flow rate of this hydrograph = 2.479(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 -- Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0001	0.01	Q	|	|	|
0+10	0.0003	0.03	Q	|	|	|
0+15	0.0006	0.04	Q	|	|	|
0+20	0.0009	0.04	Q	|	|	|
0+25	0.0012	0.04	Q	|	|	|
0+30	0.0015	0.05	Q	|	|	|
0+35	0.0019	0.05	Q	|	|	|
0+40	0.0022	0.05	Q	|	|	|
0+45	0.0026	0.05	Q	|	|	|

0+50	0.0029	0.05	Q	|	|	|
0+55	0.0033	0.05	Q	|	|	|
1+ 0	0.0036	0.05	QV	|	|	|
1+ 5	0.0040	0.06	QV	|	|	|
1+10	0.0044	0.06	QV	|	|	|
1+15	0.0048	0.06	QV	|	|	|
1+20	0.0052	0.06	QV	|	|	|
1+25	0.0056	0.06	QV	|	|	|
1+30	0.0060	0.06	QV	|	|	|
1+35	0.0064	0.06	QV	|	|	|
1+40	0.0068	0.06	QV	|	|	|
1+45	0.0072	0.06	QV	|	|	|
1+50	0.0076	0.06	Q V	|	|	|
1+55	0.0080	0.06	Q V	|	|	|
2+ 0	0.0085	0.06	Q V	|	|	|
2+ 5	0.0089	0.06	Q V	|	|	|
2+10	0.0093	0.06	Q V	|	|	|
2+15	0.0098	0.06	Q V	|	|	|
2+20	0.0102	0.07	Q V	|	|	|
2+25	0.0107	0.07	Q V	|	|	|
2+30	0.0111	0.07	Q V	|	|	|
2+35	0.0116	0.07	Q V	|	|	|
2+40	0.0120	0.07	Q V	|	|	|
2+45	0.0125	0.07	Q V	|	|	|
2+50	0.0130	0.07	Q V	|	|	|
2+55	0.0135	0.07	Q V	|	|	|
3+ 0	0.0140	0.07	Q V	|	|	|
3+ 5	0.0145	0.07	Q V	|	|	|
3+10	0.0150	0.08	Q V	|	|	|
3+15	0.0156	0.08	Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	3+20	0.0161	0.08	Q	V	|	|	|	
	3+25	0.0167	0.08	Q	V	|	|	|	
	3+30	0.0173	0.09	Q	V	|	|	|	
	3+35	0.0180	0.10	Q	V	|	|	|	
	3+40	0.0186	0.10	Q	V	|	|	|	
	3+45	0.0194	0.10	Q	V	|	|	|	
	3+50	0.0201	0.11	Q	V	|	|	|	
	3+55	0.0209	0.11	Q	V	|	|	|	
	4+ 0	0.0217	0.12	Q	V	|	|	|	
	4+ 5	0.0225	0.12	Q	V	|	|	|	
	4+10	0.0236	0.16	Q	V	|	|	|	
	4+15	0.0251	0.22	Q	V	|	|	|	
	4+20	0.0271	0.29	|Q	V	|	|	|	
	4+25	0.0296	0.36	|Q	V	|	|	|	
	4+30	0.0325	0.41	|Q	V	|	|	|	
	4+35	0.0355	0.45	|Q	V|	|	|	|	
	4+40	0.0391	0.51	| Q	V	|	|	|	
	4+45	0.0431	0.58	| Q	|V	|	|	|	
	4+50	0.0474	0.63	| Q	|	V	|	|	
	4+55	0.0520	0.67	| Q	|	V	|	|	
	5+ 0	0.0570	0.73	| Q	|	V	|	|	
	5+ 5	0.0632	0.90	| Q	|	V	|	|	
	5+10	0.0716	1.22	| Q	|	V|	|	|	
	5+15	0.0822	1.53	|	Q	|	|	V	|
	5+20	0.0943	1.77	|	Q	|	|	V	|
	5+25	0.1084	2.04	|	Q	|	|	V|	
	5+30	0.1255	2.48	|	Q|	|	|	|	V
	5+35	0.1392	2.00	|	Q	|	|	|	V
	5+40	0.1430	0.56	| Q	|	|	|	|	
V|	5+45	0.1441	0.16	Q	|	|	|	|	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	5+50	0.1446	0.07	Q	|	|	|
V|	5+55	0.1448	0.03	Q	|	|	|
V|	6+ 0	0.1450	0.02	Q	|	|	|
V|	6+ 5	0.1450	0.01	Q	|	|	|
V	6+10	0.1451	0.00	Q			
V	6+15	0.1451	0.00	Q			
V	6+20	0.1451	0.00	Q			

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33prea65.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

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Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
0.009 Sq. Mi.
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065
Mi.

Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

5.53 1.09 6.03

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 5.53 2.55 14.10

STORM EVENT (YEAR) = 5.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 1.432(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.432(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 5.530 84.00 0.000
 Total Area Entered = 5.53(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
0.198	84.0	0.198	0.000	0.198	1.000	
Sum (F) =						0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	157.948	32.675
2	0.167	315.896	53.715
3	0.250	473.844	10.920
4	0.333	631.792	2.028
5	0.417	789.740	0.662
Sum = 100.000		Sum =	5.573

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.086	(0.198)	0.077	0.009
2	0.17	0.60	0.103	(0.198)	0.093	0.010
3	0.25	0.60	0.103	(0.198)	0.093	0.010
4	0.33	0.60	0.103	(0.198)	0.093	0.010
5	0.42	0.60	0.103	(0.198)	0.093	0.010
6	0.50	0.70	0.120	(0.198)	0.108	0.012
7	0.58	0.70	0.120	(0.198)	0.108	0.012
8	0.67	0.70	0.120	(0.198)	0.108	0.012
9	0.75	0.70	0.120	(0.198)	0.108	0.012
10	0.83	0.70	0.120	(0.198)	0.108	0.012
11	0.92	0.70	0.120	(0.198)	0.108	0.012
12	1.00	0.80	0.137	(0.198)	0.124	0.014
13	1.08	0.80	0.137	(0.198)	0.124	0.014
14	1.17	0.80	0.137	(0.198)	0.124	0.014
15	1.25	0.80	0.137	(0.198)	0.124	0.014
16	1.33	0.80	0.137	(0.198)	0.124	0.014
17	1.42	0.80	0.137	(0.198)	0.124	0.014
18	1.50	0.80	0.137	(0.198)	0.124	0.014
19	1.58	0.80	0.137	(0.198)	0.124	0.014
20	1.67	0.80	0.137	(0.198)	0.124	0.014
21	1.75	0.80	0.137	(0.198)	0.124	0.014
22	1.83	0.80	0.137	(0.198)	0.124	0.014
23	1.92	0.80	0.137	(0.198)	0.124	0.014
24	2.00	0.90	0.155	(0.198)	0.139	0.015
25	2.08	0.80	0.137	(0.198)	0.124	0.014
26	2.17	0.90	0.155	(0.198)	0.139	0.015
27	2.25	0.90	0.155	(0.198)	0.139	0.015
28	2.33	0.90	0.155	(0.198)	0.139	0.015
29	2.42	0.90	0.155	(0.198)	0.139	0.015
30	2.50	0.90	0.155	(0.198)	0.139	0.015
31	2.58	0.90	0.155	(0.198)	0.139	0.015
32	2.67	0.90	0.155	(0.198)	0.139	0.015
33	2.75	1.00	0.172	(0.198)	0.155	0.017
34	2.83	1.00	0.172	(0.198)	0.155	0.017
35	2.92	1.00	0.172	(0.198)	0.155	0.017
36	3.00	1.00	0.172	(0.198)	0.155	0.017
37	3.08	1.00	0.172	(0.198)	0.155	0.017
38	3.17	1.10	0.189	(0.198)	0.170	0.019
39	3.25	1.10	0.189	(0.198)	0.170	0.019
40	3.33	1.10	0.189	(0.198)	0.170	0.019
41	3.42	1.20	0.206	(0.198)	0.186	0.021
42	3.50	1.30	0.223	0.198	(0.201)	0.025
43	3.58	1.40	0.241	0.198	(0.217)	0.042
44	3.67	1.40	0.241	0.198	(0.217)	0.042
45	3.75	1.50	0.258	0.198	(0.232)	0.059
46	3.83	1.50	0.258	0.198	(0.232)	0.059
47	3.92	1.60	0.275	0.198	(0.247)	0.077
48	4.00	1.60	0.275	0.198	(0.247)	0.077
49	4.08	1.70	0.292	0.198	(0.263)	0.094
50	4.17	1.80	0.309	0.198	(0.278)	0.111
51	4.25	1.90	0.326	0.198	(0.294)	0.128
52	4.33	2.00	0.344	0.198	(0.309)	0.145
53	4.42	2.10	0.361	0.198	(0.325)	0.162
54	4.50	2.10	0.361	0.198	(0.325)	0.162
55	4.58	2.20	0.378	0.198	(0.340)	0.180
56	4.67	2.30	0.395	0.198	(0.356)	0.197
57	4.75	2.40	0.412	0.198	(0.371)	0.214

58	4.83	2.40	0.412	0.198	(0.371)	0.214
59	4.92	2.50	0.430	0.198	(0.387)	0.231
60	5.00	2.60	0.447	0.198	(0.402)	0.248
61	5.08	3.10	0.533	0.198	(0.479)	0.334
62	5.17	3.60	0.619	0.198	(0.557)	0.420
63	5.25	3.90	0.670	0.198	(0.603)	0.472
64	5.33	4.20	0.722	0.198	(0.650)	0.523
65	5.42	4.70	0.808	0.198	(0.727)	0.609
66	5.50	5.60	0.962	0.198	(0.866)	0.764
67	5.58	1.90	0.326	0.198	(0.294)	0.128
68	5.67	0.90	0.155	(0.198)	0.139	0.015
69	5.75	0.60	0.103	(0.198)	0.093	0.010
70	5.83	0.50	0.086	(0.198)	0.077	0.009
71	5.92	0.30	0.052	(0.198)	0.046	0.005
72	6.00	0.20	0.034	(0.198)	0.031	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.3

Flood volume = Effective rainfall 0.53(In)
 times area 5.5(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.90(In)
 Total soil loss = 0.416(Ac.Ft)
 Total rainfall = 1.43(In)
 Flood volume = 10621.2 Cubic Feet
 Total soil loss = 18123.4 Cubic Feet

 -- Peak flow rate of this hydrograph = 3.604(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 -- Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0001	0.02	Q	|	|	|
0+10	0.0004	0.04	Q	|	|	|
0+15	0.0008	0.05	Q	|	|	|
0+20	0.0012	0.06	Q	|	|	|
0+25	0.0016	0.06	Q	|	|	|
0+30	0.0020	0.06	Q	|	|	|
0+35	0.0025	0.07	Q	|	|	|
0+40	0.0029	0.07	Q	|	|	|
0+45	0.0034	0.07	Q	|	|	|

0+50	0.0038	0.07	Q	|	|	|
0+55	0.0043	0.07	Q	|	|	|
1+ 0	0.0048	0.07	Q	|	|	|
1+ 5	0.0053	0.08	Q	|	|	|
1+10	0.0058	0.08	Q	|	|	|
1+15	0.0064	0.08	QV	|	|	|
1+20	0.0069	0.08	QV	|	|	|
1+25	0.0074	0.08	QV	|	|	|
1+30	0.0079	0.08	QV	|	|	|
1+35	0.0085	0.08	QV	|	|	|
1+40	0.0090	0.08	QV	|	|	|
1+45	0.0095	0.08	QV	|	|	|
1+50	0.0100	0.08	QV	|	|	|
1+55	0.0106	0.08	QV	|	|	|
2+ 0	0.0111	0.08	QV	|	|	|
2+ 5	0.0117	0.08	QV	|	|	|
2+10	0.0122	0.08	Q V	|	|	|
2+15	0.0128	0.09	Q V	|	|	|
2+20	0.0134	0.09	Q V	|	|	|
2+25	0.0140	0.09	Q V	|	|	|
2+30	0.0146	0.09	Q V	|	|	|
2+35	0.0152	0.09	Q V	|	|	|
2+40	0.0158	0.09	Q V	|	|	|
2+45	0.0164	0.09	Q V	|	|	|
2+50	0.0171	0.09	Q V	|	|	|
2+55	0.0177	0.10	Q V	|	|	|
3+ 0	0.0184	0.10	Q V	|	|	|
3+ 5	0.0190	0.10	Q V	|	|	|
3+10	0.0197	0.10	Q V	|	|	|
3+15	0.0204	0.10	Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	3+20	0.0212	0.11	Q	V	|	|	|
	3+25	0.0219	0.11	Q	V	|	|	|
	3+30	0.0227	0.12	Q	V	|	|	|
	3+35	0.0239	0.17	Q	V	|	|	|
	3+40	0.0254	0.22	Q	V	|	|	|
	3+45	0.0272	0.26	|Q	V	|	|	|
	3+50	0.0294	0.32	|Q	V	|	|	|
	3+55	0.0319	0.36	|Q	V	|	|	|
	4+ 0	0.0347	0.41	|Q	V	|	|	|
	4+ 5	0.0379	0.46	|Q	V	|	|	|
	4+10	0.0416	0.54	| Q	V	|	|	|
	4+15	0.0460	0.63	| Q	V	|	|	|
	4+20	0.0510	0.73	| Q	V	|	|	|
	4+25	0.0567	0.83	| Q	V	|	|	|
	4+30	0.0628	0.89	| Q	V	|	|	|
	4+35	0.0692	0.93	| Q	|V	|	|	|
	4+40	0.0763	1.02	| Q	| V	|	|	|
	4+45	0.0839	1.11	| Q	| V	|	|	|
	4+50	0.0920	1.18	| Q	| V	|	|	|
	4+55	0.1004	1.22	| Q	| V	|	|	|
	5+ 0	0.1094	1.31	| Q	| V	|	|	|
	5+ 5	0.1199	1.53	| Q	| V	|	|	|
	5+10	0.1334	1.95	| Q	| V	|	|	|
	5+15	0.1496	2.36	| Q	| V	|	|	|
	5+20	0.1680	2.67	| Q	| V	|	|	|
	5+25	0.1888	3.02	| Q	| V	|	|	|
	5+30	0.2137	3.60	| Q	| V	|	|	V
	5+35	0.2341	2.97	| Q	| V	|	|	V
	5+40	0.2408	0.97	| Q	| V	|	|	V
V|	5+45	0.2425	0.25	|Q	| V	|	|	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	5+50	0.2432	0.10	Q	|	|	|
V|	5+55	0.2435	0.05	Q	|	|	|
V|	6+ 0	0.2437	0.03	Q	|	|	|
V|	6+ 5	0.2438	0.01	Q	|	|	|
V|	6+10	0.2438	0.00	Q	|	|	|
V	6+15	0.2438	0.00	Q			
V	6+20	0.2438	0.00	Q			

moval 33prea610

Unit Hydrograph Analysis

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Study date 02/19/21 File: moval 33prea610.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
0.009 Sq. Mi. Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065 Mi.
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
5.53	1.09	6.03

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
5.53	2.55	14.10

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.090(In)
Area Averaged 100-Year Rainfall = 2.550(In)

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33prea610

Point rain (area averaged) = 1.691(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.691(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 5.530 84.00 0.000
 Total Area Entered = 5.53(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
						Sum (F) = 0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of Lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	157.948	32.675
2	0.167	315.896	53.715
3	0.250	473.844	10.920
4	0.333	631.792	2.028
5	0.417	789.740	0.662
		Sum = 100.000	Sum= 5.573

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	0.50	(0.198)	0.091	0.010
2	0.17	0.60	(0.198)	0.110	0.012
3	0.25	0.60	(0.198)	0.110	0.012
4	0.33	0.60	(0.198)	0.110	0.012
5	0.42	0.60	(0.198)	0.110	0.012
6	0.50	0.70	(0.198)	0.128	0.014
7	0.58	0.70	(0.198)	0.128	0.014
8	0.67	0.70	(0.198)	0.128	0.014
9	0.75	0.70	(0.198)	0.128	0.014
10	0.83	0.70	(0.198)	0.128	0.014
11	0.92	0.70	(0.198)	0.128	0.014
12	1.00	0.80	(0.198)	0.146	0.016
13	1.08	0.80	(0.198)	0.146	0.016
14	1.17	0.80	(0.198)	0.146	0.016
15	1.25	0.80	(0.198)	0.146	0.016
16	1.33	0.80	(0.198)	0.146	0.016
17	1.42	0.80	(0.198)	0.146	0.016
18	1.50	0.80	(0.198)	0.146	0.016
19	1.58	0.80	(0.198)	0.146	0.016
20	1.67	0.80	(0.198)	0.146	0.016

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21	1.75	0.80	0.162	(0.198)	0.146	0.016	
22	1.83	0.80	0.162	(0.198)	0.146	0.016	
23	1.92	0.80	0.162	(0.198)	0.146	0.016	
24	2.00	0.90	0.183	(0.198)	0.164	0.018	
25	2.08	0.80	0.162	(0.198)	0.146	0.016	
26	2.17	0.90	0.183	(0.198)	0.164	0.018	
27	2.25	0.90	0.183	(0.198)	0.164	0.018	
28	2.33	0.90	0.183	(0.198)	0.164	0.018	
29	2.42	0.90	0.183	(0.198)	0.164	0.018	
30	2.50	0.90	0.183	(0.198)	0.164	0.018	
31	2.58	0.90	0.183	(0.198)	0.164	0.018	
32	2.67	0.90	0.183	(0.198)	0.164	0.018	
33	2.75	1.00	0.203	(0.198)	0.183	0.020	
34	2.83	1.00	0.203	(0.198)	0.183	0.020	
35	2.92	1.00	0.203	(0.198)	0.183	0.020	
36	3.00	1.00	0.203	(0.198)	0.183	0.020	
37	3.08	1.00	0.203	(0.198)	0.183	0.020	
38	3.17	1.10	0.223	0.198 (0.201)		0.025	
39	3.25	1.10	0.223	0.198 (0.201)		0.025	
40	3.33	1.10	0.223	0.198 (0.201)		0.025	
41	3.42	1.20	0.243	0.198 (0.219)		0.045	
42	3.50	1.30	0.264	0.198 (0.237)		0.065	
43	3.58	1.40	0.284	0.198 (0.256)		0.086	
44	3.67	1.40	0.284	0.198 (0.256)		0.086	
45	3.75	1.50	0.304	0.198 (0.274)		0.106	
46	3.83	1.50	0.304	0.198 (0.274)		0.106	
47	3.92	1.60	0.325	0.198 (0.292)		0.126	
48	4.00	1.60	0.325	0.198 (0.292)		0.126	
49	4.08	1.70	0.345	0.198 (0.310)		0.146	
50	4.17	1.80	0.365	0.198 (0.329)		0.167	
51	4.25	1.90	0.385	0.198 (0.347)		0.187	
52	4.33	2.00	0.406	0.198 (0.365)		0.207	
53	4.42	2.10	0.426	0.198 (0.383)		0.228	
54	4.50	2.10	0.426	0.198 (0.383)		0.228	
55	4.58	2.20	0.446	0.198 (0.402)		0.248	
56	4.67	2.30	0.467	0.198 (0.420)		0.268	
57	4.75	2.40	0.487	0.198 (0.438)		0.288	
58	4.83	2.40	0.487	0.198 (0.438)		0.288	
59	4.92	2.50	0.507	0.198 (0.456)		0.309	
60	5.00	2.60	0.527	0.198 (0.475)		0.329	
61	5.08	3.10	0.629	0.198 (0.566)		0.431	
62	5.17	3.60	0.730	0.198 (0.657)		0.532	
63	5.25	3.90	0.791	0.198 (0.712)		0.593	
64	5.33	4.20	0.852	0.198 (0.767)		0.654	
65	5.42	4.70	0.954	0.198 (0.858)		0.755	
66	5.50	5.60	1.136	0.198 (1.022)		0.938	
67	5.58	1.90	0.385	0.198 (0.347)		0.187	
68	5.67	0.90	0.183	(0.198)	0.164	0.018	
69	5.75	0.60	0.122	(0.198)	0.110	0.012	
70	5.83	0.50	0.101	(0.198)	0.091	0.010	
71	5.92	0.30	0.061	(0.198)	0.055	0.006	
72	6.00	0.20	0.041	(0.198)	0.037	0.004	

Sum = 100.0 (Loss Rate Not Used) Sum = 8.5

Flood volume = Effective rainfall 0.70(In)
 times area 5.5(Ac.)/[(In)/(Ft.)] = 0.3(Ac. Ft)
 Total soil loss = 0.99(In)
 Total soil loss = 0.454(Ac. Ft)
 Total rainfall = 1.69(In)
 Flood volume = 14145.7 Cubic Feet
 Total soil loss = 19791.7 Cubic Feet

Peak flow rate of this hydrograph = 4.455(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac. Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001		0.02	Q				
0+10	0.0005		0.05	Q				
0+15	0.0009		0.06	Q				
0+20	0.0014		0.07	Q				
0+25	0.0019		0.07	Q				
0+30	0.0024		0.07	Q				
0+35	0.0029		0.08	Q				
0+40	0.0034		0.08	Q				
0+45	0.0040		0.08	Q				
0+50	0.0045		0.08	Q				
0+55	0.0051		0.08	Q				
1+ 0	0.0056		0.08	Q				
1+ 5	0.0063		0.09	Q				
1+10	0.0069		0.09	Q				
1+15	0.0075		0.09	Q				
1+20	0.0081		0.09	QV				
1+25	0.0087		0.09	QV				
1+30	0.0094		0.09	QV				
1+35	0.0100		0.09	QV				
1+40	0.0106		0.09	QV				
1+45	0.0112		0.09	QV				
1+50	0.0119		0.09	QV				
1+55	0.0125		0.09	QV				
2+ 0	0.0131		0.09	QV				
2+ 5	0.0138		0.10	QV				
2+10	0.0145		0.10	QV				
2+15	0.0151		0.10	QV				
2+20	0.0158		0.10	QV				
2+25	0.0165		0.10	Q V				
2+30	0.0173		0.10	Q V				
2+35	0.0180		0.10	Q V				
2+40	0.0187		0.10	Q V				
2+45	0.0194		0.11	Q V				
2+50	0.0201		0.11	Q V				
2+55	0.0209		0.11	Q V				
3+ 0	0.0217		0.11	Q V				
3+ 5	0.0225		0.11	Q V				
3+10	0.0233		0.12	Q V				
3+15	0.0242		0.13	Q V				
3+20	0.0252		0.14	Q V				
3+25	0.0264		0.17	Q V				
3+30	0.0283		0.27	Q V				
3+35	0.0309		0.38	Q V				
3+40	0.0341		0.46	Q V				
3+45	0.0376		0.51	Q V				
3+50	0.0415		0.57	Q V				
3+55	0.0458		0.62	Q V				
4+ 0	0.0506		0.69	Q V				
4+ 5	0.0557		0.74	Q V				
4+10	0.0614		0.84	Q V				
4+15	0.0680		0.95	Q V				
4+20	0.0753		1.06	Q V				
4+25	0.0833		1.17	Q V				

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4+30	0.0920	1.25		Q	V	
4+35	0.1009	1.30		Q	V	
4+40	0.1106	1.40		Q	V	
4+45	0.1210	1.51		Q	V	
4+50	0.1320	1.59		Q	V	
4+55	0.1433	1.64		Q	V	
5+ 0	0.1553	1.74		Q	V	
5+ 5	0.1691	2.00		Q	V	
5+10	0.1863	2.50		Q	V	
5+15	0.2069	2.98		Q	V	
5+20	0.2299	3.35		Q	V	
5+25	0.2559	3.77		Q	V	
5+30	0.2866	4.45		Q	V	
5+35	0.3121	3.71		Q	V	
5+40	0.3209	1.27		Q	V	
5+45	0.3231	0.32	Q		V	
5+50	0.3240	0.12	Q		V	
5+55	0.3244	0.06	Q		V	
6+ 0	0.3246	0.03	Q		V	
6+ 5	0.3247	0.02	Q		V	
6+10	0.3247	0.00	Q		V	
6+15	0.3247	0.00	Q		V	
6+20	0.3247	0.00	Q		V	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33prea6100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff
Area A

--
Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
0.009 Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
Length along longest watercourse = 0.161 Mi.
Mi. Length along longest watercourse measured to centroid = 0.065

Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.153	0.086	(0.138)	0.067
2	0.17	0.60	0.184	0.086	(0.165)	0.098
3	0.25	0.60	0.184	0.086	(0.165)	0.098
4	0.33	0.60	0.184	0.086	(0.165)	0.098
5	0.42	0.60	0.184	0.086	(0.165)	0.098
6	0.50	0.70	0.214	0.086	(0.193)	0.128
7	0.58	0.70	0.214	0.086	(0.193)	0.128
8	0.67	0.70	0.214	0.086	(0.193)	0.128
9	0.75	0.70	0.214	0.086	(0.193)	0.128
10	0.83	0.70	0.214	0.086	(0.193)	0.128
11	0.92	0.70	0.214	0.086	(0.193)	0.128
12	1.00	0.80	0.245	0.086	(0.220)	0.159
13	1.08	0.80	0.245	0.086	(0.220)	0.159
14	1.17	0.80	0.245	0.086	(0.220)	0.159
15	1.25	0.80	0.245	0.086	(0.220)	0.159
16	1.33	0.80	0.245	0.086	(0.220)	0.159
17	1.42	0.80	0.245	0.086	(0.220)	0.159
18	1.50	0.80	0.245	0.086	(0.220)	0.159
19	1.58	0.80	0.245	0.086	(0.220)	0.159
20	1.67	0.80	0.245	0.086	(0.220)	0.159
21	1.75	0.80	0.245	0.086	(0.220)	0.159
22	1.83	0.80	0.245	0.086	(0.220)	0.159
23	1.92	0.80	0.245	0.086	(0.220)	0.159
24	2.00	0.90	0.275	0.086	(0.248)	0.190
25	2.08	0.80	0.245	0.086	(0.220)	0.159
26	2.17	0.90	0.275	0.086	(0.248)	0.190
27	2.25	0.90	0.275	0.086	(0.248)	0.190
28	2.33	0.90	0.275	0.086	(0.248)	0.190
29	2.42	0.90	0.275	0.086	(0.248)	0.190
30	2.50	0.90	0.275	0.086	(0.248)	0.190
31	2.58	0.90	0.275	0.086	(0.248)	0.190
32	2.67	0.90	0.275	0.086	(0.248)	0.190
33	2.75	1.00	0.306	0.086	(0.275)	0.220
34	2.83	1.00	0.306	0.086	(0.275)	0.220
35	2.92	1.00	0.306	0.086	(0.275)	0.220
36	3.00	1.00	0.306	0.086	(0.275)	0.220
37	3.08	1.00	0.306	0.086	(0.275)	0.220
38	3.17	1.10	0.337	0.086	(0.303)	0.251
39	3.25	1.10	0.337	0.086	(0.303)	0.251
40	3.33	1.10	0.337	0.086	(0.303)	0.251
41	3.42	1.20	0.367	0.086	(0.330)	0.281
42	3.50	1.30	0.398	0.086	(0.358)	0.312
43	3.58	1.40	0.428	0.086	(0.386)	0.343
44	3.67	1.40	0.428	0.086	(0.386)	0.343
45	3.75	1.50	0.459	0.086	(0.413)	0.373
46	3.83	1.50	0.459	0.086	(0.413)	0.373
47	3.92	1.60	0.490	0.086	(0.441)	0.404
48	4.00	1.60	0.490	0.086	(0.441)	0.404
49	4.08	1.70	0.520	0.086	(0.468)	0.434
50	4.17	1.80	0.551	0.086	(0.496)	0.465
51	4.25	1.90	0.581	0.086	(0.523)	0.496
52	4.33	2.00	0.612	0.086	(0.551)	0.526
53	4.42	2.10	0.643	0.086	(0.578)	0.557
54	4.50	2.10	0.643	0.086	(0.578)	0.557
55	4.58	2.20	0.673	0.086	(0.606)	0.587
56	4.67	2.30	0.704	0.086	(0.633)	0.618
57	4.75	2.40	0.734	0.086	(0.661)	0.649

58	4.83	2.40	0.734	0.086	(0.661)	0.649
59	4.92	2.50	0.765	0.086	(0.688)	0.679
60	5.00	2.60	0.796	0.086	(0.716)	0.710
61	5.08	3.10	0.949	0.086	(0.854)	0.863
62	5.17	3.60	1.102	0.086	(0.991)	1.016
63	5.25	3.90	1.193	0.086	(1.074)	1.108
64	5.33	4.20	1.285	0.086	(1.157)	1.199
65	5.42	4.70	1.438	0.086	(1.294)	1.352
66	5.50	5.60	1.714	0.086	(1.542)	1.628
67	5.58	1.90	0.581	0.086	(0.523)	0.496
68	5.67	0.90	0.275	0.086	(0.248)	0.190
69	5.75	0.60	0.184	0.086	(0.165)	0.098
70	5.83	0.50	0.153	0.086	(0.138)	0.067
71	5.92	0.30	0.092	(0.086)	0.083	0.009
72	6.00	0.20	0.061	(0.086)	0.055	0.006

(Loss Rate Not Used)

Sum = 100.0 Sum = 24.5

Flood volume = Effective rainfall 2.04(In)
 times area 5.5(Ac.)/[(In)/(Ft.)] = 0.9(Ac.Ft)
 Total soil loss = 0.51(In)
 Total soil loss = 0.236(Ac.Ft)
 Total rainfall = 2.55(In)
 Flood volume = 40910.1 Cubic Feet
 Total soil loss = 10277.3 Cubic Feet

Peak flow rate of this hydrograph = 7.909(CFS)

6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5

0+ 5	0.0008	0.12	Q	|	|	|
0+10	0.0035	0.38	VQ	|	|	|
0+15	0.0070	0.51	V Q	|	|	|
0+20	0.0107	0.54	V Q	|	|	|
0+25	0.0144	0.54	V Q	|	|	|
0+30	0.0186	0.60	V Q	|	|	|
0+35	0.0233	0.69	V Q	|	|	|
0+40	0.0282	0.71	|VQ	|	|	|
0+45	0.0332	0.71	|VQ	|	|	|

0+50	0.0381	0.72	|VQ	|	|	|
0+55	0.0430	0.72	|VQ	|	|	|
1+ 0	0.0483	0.77	| VQ	|	|	|
1+ 5	0.0543	0.86	| VQ	|	|	|
1+10	0.0604	0.88	| VQ	|	|	|
1+15	0.0665	0.89	| VQ	|	|	|
1+20	0.0726	0.89	| Q	|	|	|
1+25	0.0787	0.89	| Q	|	|	|
1+30	0.0848	0.89	| Q	|	|	|
1+35	0.0909	0.89	| Q	|	|	|
1+40	0.0970	0.89	| QV	|	|	|
1+45	0.1031	0.89	| QV	|	|	|
1+50	0.1092	0.89	| QV	|	|	|
1+55	0.1153	0.89	| QV	|	|	|
2+ 0	0.1218	0.94	| Q V	|	|	|
2+ 5	0.1285	0.98	| Q V	|	|	|
2+10	0.1352	0.96	| Q V	|	|	|
2+15	0.1423	1.04	| Q V	|	|	|
2+20	0.1496	1.05	| Q V	|	|	|
2+25	0.1568	1.06	| Q V	|	|	|
2+30	0.1641	1.06	| Q V	|	|	|
2+35	0.1714	1.06	| Q V	|	|	|
2+40	0.1787	1.06	| Q V	|	|	|
2+45	0.1863	1.11	| Q V	|	|	|
2+50	0.1946	1.20	| Q V	|	|	|
2+55	0.2031	1.22	| Q V	|	|	|
3+ 0	0.2115	1.23	| Q V	|	|	|
3+ 5	0.2200	1.23	| Q V	|	|	|
3+10	0.2288	1.28	| Q V	|	|	|
3+15	0.2383	1.38	| Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	3+20	0.2479	1.39	|	Q	V	|	|	|
	3+25	0.2579	1.45	|	Q	V	|	|	|
	3+30	0.2689	1.60	|	Q	|V	|	|	|
	3+35	0.2811	1.77	|	Q	|V	|	|	|
	3+40	0.2940	1.88	|	Q	|V	|	|	|
	3+45	0.3075	1.96	|	Q	|V	|	|	|
	3+50	0.3217	2.06	|	Q	|V	|	|	|
	3+55	0.3364	2.13	|	Q	|V	|	|	|
	4+ 0	0.3517	2.23	|	Q	|V	|	|	|
	4+ 5	0.3676	2.30	|	Q|	V	|	|	|
	4+10	0.3845	2.45	|	Q|	V	|	|	|
	4+15	0.4025	2.62	|	Q	V	|	|	|
	4+20	0.4218	2.79	|	|Q	V	|	|	|
	4+25	0.4421	2.96	|	|Q	V	|	|	|
	4+30	0.4633	3.08	|	|Q	V|	|	|	|
	4+35	0.4851	3.15	|	|Q	V	|	|	|
	4+40	0.5078	3.31	|	|Q	|V	|	|	|
	4+45	0.5318	3.47	|	|Q	|V	|	|	|
	4+50	0.5565	3.59	|	|Q	|V	|	|	|
	4+55	0.5817	3.67	|	|Q	|V	|	|	|
	5+ 0	0.6080	3.82	|	|Q	|V	|	|	|
	5+ 5	0.6370	4.21	|	|Q	|V	|	|	|
	5+10	0.6712	4.97	|	|	Q|	V	|	|
	5+15	0.7104	5.69	|	|	|Q	V	|	|
	5+20	0.7534	6.24	|	|	|Q	|V	|	|
	5+25	0.8008	6.88	|	|	|Q	|V	|	|
	5+30	0.8553	7.91	|	|	|	|Q	V	|
	5+35	0.9019	6.78	|	|	|	Q	|	V
	5+40	0.9227	3.02	|	|Q	|	|	|	|
	5+45	0.9316	1.28	|	Q	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	5+50	0.9360	0.65	| Q	|	|	|
V|	5+55	0.9382	0.32	| Q	|	|	|
V|	6+ 0	0.9389	0.10	Q	|	|	|
V|	6+ 5	0.9391	0.04	Q	|	|	|
V	6+10	0.9392	0.01	Q			
V	6+15	0.9392	0.00	Q			
V	6+20	0.9392	0.00	Q			
V							

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33prea242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

--

Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
0.009 Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Sq. Mi.

(Ft.) Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00

Mi. Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065

Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

5.53 1.93 10.67

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
5.53	4.64	25.66

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 1.930(In)
 Area Averaged 100-Year Rainfall = 4.640(In)

Point rain (area averaged) = 1.930(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.930(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
5.530	84.00	0.000
Total Area Entered = 5.53(Ac.)		

RI (In/Hr)	RI AMC2	Infil. Rate (In/Hr)	Impervious (Dec.)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
0.198	84.0	0.198	0.000	0.198	1.000	
Sum (F) =						0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 F O O T H I L L S - C u r v e

--
 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	157.948	32.675
2	0.167	315.896	53.715
3	0.250	473.844	10.920
4	0.333	631.792	2.028
5	0.417	789.740	0.662
Sum = 100.000			Sum= 5.573

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.015	(0.352)	0.014	0.002
2	0.17	0.07	0.015	(0.350)	0.014	0.002
3	0.25	0.07	0.015	(0.349)	0.014	0.002
4	0.33	0.10	0.023	(0.348)	0.021	0.002
5	0.42	0.10	0.023	(0.346)	0.021	0.002
6	0.50	0.10	0.023	(0.345)	0.021	0.002
7	0.58	0.10	0.023	(0.344)	0.021	0.002
8	0.67	0.10	0.023	(0.342)	0.021	0.002
9	0.75	0.10	0.023	(0.341)	0.021	0.002
10	0.83	0.13	0.031	(0.340)	0.028	0.003
11	0.92	0.13	0.031	(0.338)	0.028	0.003
12	1.00	0.13	0.031	(0.337)	0.028	0.003
13	1.08	0.10	0.023	(0.336)	0.021	0.002
14	1.17	0.10	0.023	(0.334)	0.021	0.002
15	1.25	0.10	0.023	(0.333)	0.021	0.002
16	1.33	0.10	0.023	(0.332)	0.021	0.002
17	1.42	0.10	0.023	(0.330)	0.021	0.002
18	1.50	0.10	0.023	(0.329)	0.021	0.002
19	1.58	0.10	0.023	(0.328)	0.021	0.002
20	1.67	0.10	0.023	(0.326)	0.021	0.002
21	1.75	0.10	0.023	(0.325)	0.021	0.002
22	1.83	0.13	0.031	(0.324)	0.028	0.003
23	1.92	0.13	0.031	(0.322)	0.028	0.003
24	2.00	0.13	0.031	(0.321)	0.028	0.003
25	2.08	0.13	0.031	(0.320)	0.028	0.003
26	2.17	0.13	0.031	(0.318)	0.028	0.003
27	2.25	0.13	0.031	(0.317)	0.028	0.003
28	2.33	0.13	0.031	(0.316)	0.028	0.003
29	2.42	0.13	0.031	(0.315)	0.028	0.003
30	2.50	0.13	0.031	(0.313)	0.028	0.003
31	2.58	0.17	0.039	(0.312)	0.035	0.004
32	2.67	0.17	0.039	(0.311)	0.035	0.004
33	2.75	0.17	0.039	(0.310)	0.035	0.004
34	2.83	0.17	0.039	(0.308)	0.035	0.004
35	2.92	0.17	0.039	(0.307)	0.035	0.004
36	3.00	0.17	0.039	(0.306)	0.035	0.004
37	3.08	0.17	0.039	(0.304)	0.035	0.004
38	3.17	0.17	0.039	(0.303)	0.035	0.004
39	3.25	0.17	0.039	(0.302)	0.035	0.004
40	3.33	0.17	0.039	(0.301)	0.035	0.004
41	3.42	0.17	0.039	(0.299)	0.035	0.004
42	3.50	0.17	0.039	(0.298)	0.035	0.004
43	3.58	0.17	0.039	(0.297)	0.035	0.004
44	3.67	0.17	0.039	(0.296)	0.035	0.004
45	3.75	0.17	0.039	(0.294)	0.035	0.004
46	3.83	0.20	0.046	(0.293)	0.042	0.005
47	3.92	0.20	0.046	(0.292)	0.042	0.005
48	4.00	0.20	0.046	(0.291)	0.042	0.005
49	4.08	0.20	0.046	(0.289)	0.042	0.005
50	4.17	0.20	0.046	(0.288)	0.042	0.005
51	4.25	0.20	0.046	(0.287)	0.042	0.005
52	4.33	0.23	0.054	(0.286)	0.049	0.005
53	4.42	0.23	0.054	(0.285)	0.049	0.005
54	4.50	0.23	0.054	(0.283)	0.049	0.005
55	4.58	0.23	0.054	(0.282)	0.049	0.005
56	4.67	0.23	0.054	(0.281)	0.049	0.005
57	4.75	0.23	0.054	(0.280)	0.049	0.005

58	4.83	0.27	0.062	(0.278)	0.056	0.006
59	4.92	0.27	0.062	(0.277)	0.056	0.006
60	5.00	0.27	0.062	(0.276)	0.056	0.006
61	5.08	0.20	0.046	(0.275)	0.042	0.005
62	5.17	0.20	0.046	(0.274)	0.042	0.005
63	5.25	0.20	0.046	(0.272)	0.042	0.005
64	5.33	0.23	0.054	(0.271)	0.049	0.005
65	5.42	0.23	0.054	(0.270)	0.049	0.005
66	5.50	0.23	0.054	(0.269)	0.049	0.005
67	5.58	0.27	0.062	(0.268)	0.056	0.006
68	5.67	0.27	0.062	(0.267)	0.056	0.006
69	5.75	0.27	0.062	(0.265)	0.056	0.006
70	5.83	0.27	0.062	(0.264)	0.056	0.006
71	5.92	0.27	0.062	(0.263)	0.056	0.006
72	6.00	0.27	0.062	(0.262)	0.056	0.006
73	6.08	0.30	0.069	(0.261)	0.063	0.007
74	6.17	0.30	0.069	(0.260)	0.063	0.007
75	6.25	0.30	0.069	(0.258)	0.063	0.007
76	6.33	0.30	0.069	(0.257)	0.063	0.007
77	6.42	0.30	0.069	(0.256)	0.063	0.007
78	6.50	0.30	0.069	(0.255)	0.063	0.007
79	6.58	0.33	0.077	(0.254)	0.069	0.008
80	6.67	0.33	0.077	(0.253)	0.069	0.008
81	6.75	0.33	0.077	(0.252)	0.069	0.008
82	6.83	0.33	0.077	(0.250)	0.069	0.008
83	6.92	0.33	0.077	(0.249)	0.069	0.008
84	7.00	0.33	0.077	(0.248)	0.069	0.008
85	7.08	0.33	0.077	(0.247)	0.069	0.008
86	7.17	0.33	0.077	(0.246)	0.069	0.008
87	7.25	0.33	0.077	(0.245)	0.069	0.008
88	7.33	0.37	0.085	(0.244)	0.076	0.008
89	7.42	0.37	0.085	(0.243)	0.076	0.008
90	7.50	0.37	0.085	(0.241)	0.076	0.008
91	7.58	0.40	0.093	(0.240)	0.083	0.009
92	7.67	0.40	0.093	(0.239)	0.083	0.009
93	7.75	0.40	0.093	(0.238)	0.083	0.009
94	7.83	0.43	0.100	(0.237)	0.090	0.010
95	7.92	0.43	0.100	(0.236)	0.090	0.010
96	8.00	0.43	0.100	(0.235)	0.090	0.010
97	8.08	0.50	0.116	(0.234)	0.104	0.012
98	8.17	0.50	0.116	(0.233)	0.104	0.012
99	8.25	0.50	0.116	(0.232)	0.104	0.012
100	8.33	0.50	0.116	(0.230)	0.104	0.012
101	8.42	0.50	0.116	(0.229)	0.104	0.012
102	8.50	0.50	0.116	(0.228)	0.104	0.012
103	8.58	0.53	0.124	(0.227)	0.111	0.012
104	8.67	0.53	0.124	(0.226)	0.111	0.012
105	8.75	0.53	0.124	(0.225)	0.111	0.012
106	8.83	0.57	0.131	(0.224)	0.118	0.013
107	8.92	0.57	0.131	(0.223)	0.118	0.013
108	9.00	0.57	0.131	(0.222)	0.118	0.013
109	9.08	0.63	0.147	(0.221)	0.132	0.015
110	9.17	0.63	0.147	(0.220)	0.132	0.015
111	9.25	0.63	0.147	(0.219)	0.132	0.015
112	9.33	0.67	0.154	(0.218)	0.139	0.015
113	9.42	0.67	0.154	(0.217)	0.139	0.015
114	9.50	0.67	0.154	(0.216)	0.139	0.015
115	9.58	0.70	0.162	(0.215)	0.146	0.016
116	9.67	0.70	0.162	(0.214)	0.146	0.016
117	9.75	0.70	0.162	(0.213)	0.146	0.016

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

118	9.83	0.73	0.170	(0.212)	0.153	0.017
119	9.92	0.73	0.170	(0.211)	0.153	0.017
120	10.00	0.73	0.170	(0.210)	0.153	0.017
121	10.08	0.50	0.116	(0.208)	0.104	0.012
122	10.17	0.50	0.116	(0.207)	0.104	0.012
123	10.25	0.50	0.116	(0.206)	0.104	0.012
124	10.33	0.50	0.116	(0.205)	0.104	0.012
125	10.42	0.50	0.116	(0.204)	0.104	0.012
126	10.50	0.50	0.116	(0.203)	0.104	0.012
127	10.58	0.67	0.154	(0.202)	0.139	0.015
128	10.67	0.67	0.154	(0.201)	0.139	0.015
129	10.75	0.67	0.154	(0.201)	0.139	0.015
130	10.83	0.67	0.154	(0.200)	0.139	0.015
131	10.92	0.67	0.154	(0.199)	0.139	0.015
132	11.00	0.67	0.154	(0.198)	0.139	0.015
133	11.08	0.63	0.147	(0.197)	0.132	0.015
134	11.17	0.63	0.147	(0.196)	0.132	0.015
135	11.25	0.63	0.147	(0.195)	0.132	0.015
136	11.33	0.63	0.147	(0.194)	0.132	0.015
137	11.42	0.63	0.147	(0.193)	0.132	0.015
138	11.50	0.63	0.147	(0.192)	0.132	0.015
139	11.58	0.57	0.131	(0.191)	0.118	0.013
140	11.67	0.57	0.131	(0.190)	0.118	0.013
141	11.75	0.57	0.131	(0.189)	0.118	0.013
142	11.83	0.60	0.139	(0.188)	0.125	0.014
143	11.92	0.60	0.139	(0.187)	0.125	0.014
144	12.00	0.60	0.139	(0.186)	0.125	0.014
145	12.08	0.83	0.193	(0.185)	0.174	0.019
146	12.17	0.83	0.193	(0.184)	0.174	0.019
147	12.25	0.83	0.193	(0.183)	0.174	0.019
148	12.33	0.87	0.201	(0.182)	0.181	0.020
149	12.42	0.87	0.201	(0.182)	0.181	0.020
150	12.50	0.87	0.201	0.181	(0.181)	0.020
151	12.58	0.93	0.216	0.180	(0.195)	0.036
152	12.67	0.93	0.216	0.179	(0.195)	0.037
153	12.75	0.93	0.216	0.178	(0.195)	0.038
154	12.83	0.97	0.224	0.177	(0.201)	0.047
155	12.92	0.97	0.224	0.176	(0.201)	0.048
156	13.00	0.97	0.224	0.175	(0.201)	0.049
157	13.08	1.13	0.262	0.174	(0.236)	0.088
158	13.17	1.13	0.262	0.173	(0.236)	0.089
159	13.25	1.13	0.262	0.173	(0.236)	0.090
160	13.33	1.13	0.262	0.172	(0.236)	0.091
161	13.42	1.13	0.262	0.171	(0.236)	0.092
162	13.50	1.13	0.262	0.170	(0.236)	0.093
163	13.58	0.77	0.178	(0.169)	0.160	0.018
164	13.67	0.77	0.178	(0.168)	0.160	0.018
165	13.75	0.77	0.178	(0.167)	0.160	0.018
166	13.83	0.77	0.178	(0.166)	0.160	0.018
167	13.92	0.77	0.178	(0.166)	0.160	0.018
168	14.00	0.77	0.178	(0.165)	0.160	0.018
169	14.08	0.90	0.208	0.164	(0.188)	0.044
170	14.17	0.90	0.208	0.163	(0.188)	0.045
171	14.25	0.90	0.208	0.162	(0.188)	0.046
172	14.33	0.87	0.201	0.161	(0.181)	0.039
173	14.42	0.87	0.201	0.161	(0.181)	0.040
174	14.50	0.87	0.201	0.160	(0.181)	0.041
175	14.58	0.87	0.201	0.159	(0.181)	0.042
176	14.67	0.87	0.201	0.158	(0.181)	0.043
177	14.75	0.87	0.201	0.157	(0.181)	0.043

178	14.83	0.83	0.193	0.157	(0.174)	0.036
179	14.92	0.83	0.193	0.156	(0.174)	0.037
180	15.00	0.83	0.193	0.155	(0.174)	0.038
181	15.08	0.80	0.185	0.154	(0.167)	0.031
182	15.17	0.80	0.185	0.153	(0.167)	0.032
183	15.25	0.80	0.185	0.153	(0.167)	0.033
184	15.33	0.77	0.178	0.152	(0.160)	0.026
185	15.42	0.77	0.178	0.151	(0.160)	0.027
186	15.50	0.77	0.178	0.150	(0.160)	0.027
187	15.58	0.63	0.147	(0.149)	0.132	0.015
188	15.67	0.63	0.147	(0.149)	0.132	0.015
189	15.75	0.63	0.147	(0.148)	0.132	0.015
190	15.83	0.63	0.147	(0.147)	0.132	0.015
191	15.92	0.63	0.147	(0.146)	0.132	0.015
192	16.00	0.63	0.147	(0.146)	0.132	0.015
193	16.08	0.13	0.031	(0.145)	0.028	0.003
194	16.17	0.13	0.031	(0.144)	0.028	0.003
195	16.25	0.13	0.031	(0.143)	0.028	0.003
196	16.33	0.13	0.031	(0.143)	0.028	0.003
197	16.42	0.13	0.031	(0.142)	0.028	0.003
198	16.50	0.13	0.031	(0.141)	0.028	0.003
199	16.58	0.10	0.023	(0.141)	0.021	0.002
200	16.67	0.10	0.023	(0.140)	0.021	0.002
201	16.75	0.10	0.023	(0.139)	0.021	0.002
202	16.83	0.10	0.023	(0.138)	0.021	0.002
203	16.92	0.10	0.023	(0.138)	0.021	0.002
204	17.00	0.10	0.023	(0.137)	0.021	0.002
205	17.08	0.17	0.039	(0.136)	0.035	0.004
206	17.17	0.17	0.039	(0.136)	0.035	0.004
207	17.25	0.17	0.039	(0.135)	0.035	0.004
208	17.33	0.17	0.039	(0.134)	0.035	0.004
209	17.42	0.17	0.039	(0.134)	0.035	0.004
210	17.50	0.17	0.039	(0.133)	0.035	0.004
211	17.58	0.17	0.039	(0.132)	0.035	0.004
212	17.67	0.17	0.039	(0.132)	0.035	0.004
213	17.75	0.17	0.039	(0.131)	0.035	0.004
214	17.83	0.13	0.031	(0.130)	0.028	0.003
215	17.92	0.13	0.031	(0.130)	0.028	0.003
216	18.00	0.13	0.031	(0.129)	0.028	0.003
217	18.08	0.13	0.031	(0.128)	0.028	0.003
218	18.17	0.13	0.031	(0.128)	0.028	0.003
219	18.25	0.13	0.031	(0.127)	0.028	0.003
220	18.33	0.13	0.031	(0.127)	0.028	0.003
221	18.42	0.13	0.031	(0.126)	0.028	0.003
222	18.50	0.13	0.031	(0.125)	0.028	0.003
223	18.58	0.10	0.023	(0.125)	0.021	0.002
224	18.67	0.10	0.023	(0.124)	0.021	0.002
225	18.75	0.10	0.023	(0.124)	0.021	0.002
226	18.83	0.07	0.015	(0.123)	0.014	0.002
227	18.92	0.07	0.015	(0.122)	0.014	0.002
228	19.00	0.07	0.015	(0.122)	0.014	0.002
229	19.08	0.10	0.023	(0.121)	0.021	0.002
230	19.17	0.10	0.023	(0.121)	0.021	0.002
231	19.25	0.10	0.023	(0.120)	0.021	0.002
232	19.33	0.13	0.031	(0.119)	0.028	0.003
233	19.42	0.13	0.031	(0.119)	0.028	0.003
234	19.50	0.13	0.031	(0.118)	0.028	0.003
235	19.58	0.10	0.023	(0.118)	0.021	0.002
236	19.67	0.10	0.023	(0.117)	0.021	0.002
237	19.75	0.10	0.023	(0.117)	0.021	0.002

-- Peak flow rate of this hydrograph = 0.512(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

-- Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0							
0+ 5	0.0000		0.00	Q	|	|	|
0+10	0.0001		0.01	Q	|	|	|
0+15	0.0001		0.01	Q	|	|	|
0+20	0.0002		0.01	Q	|	|	|
0+25	0.0003		0.01	Q	|	|	|
0+30	0.0004		0.01	Q	|	|	|
0+35	0.0005		0.01	Q	|	|	|
0+40	0.0005		0.01	Q	|	|	|
0+45	0.0006		0.01	Q	|	|	|
0+50	0.0007		0.01	Q	|	|	|
0+55	0.0008		0.02	Q	|	|	|
1+ 0	0.0010		0.02	Q	|	|	|
1+ 5	0.0011		0.02	Q	|	|	|
1+10	0.0012		0.01	Q	|	|	|
1+15	0.0013		0.01	Q	|	|	|
1+20	0.0013		0.01	Q	|	|	|
1+25	0.0014		0.01	Q	|	|	|
1+30	0.0015		0.01	Q	|	|	|
1+35	0.0016		0.01	Q	|	|	|
1+40	0.0017		0.01	Q	|	|	|
1+45	0.0018		0.01	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+50	0.0019	0.01	Q	|	|	|
1+55	0.0020	0.02	Q	|	|	|
2+ 0	0.0021	0.02	Q	|	|	|
2+ 5	0.0022	0.02	Q	|	|	|
2+10	0.0024	0.02	Q	|	|	|
2+15	0.0025	0.02	Q	|	|	|
2+20	0.0026	0.02	Q	|	|	|
2+25	0.0027	0.02	Q	|	|	|
2+30	0.0028	0.02	Q	|	|	|
2+35	0.0030	0.02	Q	|	|	|
2+40	0.0031	0.02	QV	|	|	|
2+45	0.0033	0.02	QV	|	|	|
2+50	0.0034	0.02	QV	|	|	|
2+55	0.0036	0.02	QV	|	|	|
3+ 0	0.0037	0.02	QV	|	|	|
3+ 5	0.0038	0.02	QV	|	|	|
3+10	0.0040	0.02	QV	|	|	|
3+15	0.0041	0.02	QV	|	|	|
3+20	0.0043	0.02	QV	|	|	|
3+25	0.0044	0.02	QV	|	|	|
3+30	0.0046	0.02	QV	|	|	|
3+35	0.0047	0.02	QV	|	|	|
3+40	0.0049	0.02	QV	|	|	|
3+45	0.0050	0.02	QV	|	|	|
3+50	0.0052	0.02	QV	|	|	|
3+55	0.0054	0.03	QV	|	|	|
4+ 0	0.0055	0.03	QV	|	|	|
4+ 5	0.0057	0.03	QV	|	|	|
4+10	0.0059	0.03	QV	|	|	|
4+15	0.0061	0.03	Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4+20	0.0063	0.03	Q	V	|	|	|
4+25	0.0065	0.03	Q	V	|	|	|
4+30	0.0067	0.03	Q	V	|	|	|
4+35	0.0069	0.03	Q	V	|	|	|
4+40	0.0071	0.03	Q	V	|	|	|
4+45	0.0073	0.03	Q	V	|	|	|
4+50	0.0075	0.03	Q	V	|	|	|
4+55	0.0077	0.03	Q	V	|	|	|
5+ 0	0.0080	0.03	Q	V	|	|	|
5+ 5	0.0082	0.03	Q	V	|	|	|
5+10	0.0084	0.03	Q	V	|	|	|
5+15	0.0086	0.03	Q	V	|	|	|
5+20	0.0088	0.03	Q	V	|	|	|
5+25	0.0090	0.03	Q	V	|	|	|
5+30	0.0092	0.03	Q	V	|	|	|
5+35	0.0094	0.03	Q	V	|	|	|
5+40	0.0096	0.03	Q	V	|	|	|
5+45	0.0099	0.03	Q	V	|	|	|
5+50	0.0101	0.03	Q	V	|	|	|
5+55	0.0103	0.03	Q	V	|	|	|
6+ 0	0.0106	0.03	Q	V	|	|	|
6+ 5	0.0108	0.04	Q	V	|	|	|
6+10	0.0111	0.04	Q	V	|	|	|
6+15	0.0113	0.04	Q	V	|	|	|
6+20	0.0116	0.04	Q	V	|	|	|
6+25	0.0119	0.04	Q	V	|	|	|
6+30	0.0121	0.04	Q	V	|	|	|
6+35	0.0124	0.04	Q	V	|	|	|
6+40	0.0127	0.04	Q	V	|	|	|
6+45	0.0130	0.04	Q	V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+50	0.0133	0.04	Q	V	|	|	|
6+55	0.0136	0.04	Q	V	|	|	|
7+ 0	0.0139	0.04	Q	V	|	|	|
7+ 5	0.0142	0.04	Q	V	|	|	|
7+10	0.0145	0.04	Q	V	|	|	|
7+15	0.0148	0.04	Q	V	|	|	|
7+20	0.0151	0.04	Q	V	|	|	|
7+25	0.0154	0.05	Q	V	|	|	|
7+30	0.0157	0.05	Q	V	|	|	|
7+35	0.0161	0.05	Q	V	|	|	|
7+40	0.0164	0.05	Q	V	|	|	|
7+45	0.0168	0.05	Q	V	|	|	|
7+50	0.0171	0.05	Q	V	|	|	|
7+55	0.0175	0.06	Q	V	|	|	|
8+ 0	0.0179	0.06	Q	V	|	|	|
8+ 5	0.0183	0.06	Q	V	|	|	|
8+10	0.0187	0.06	Q	V	|	|	|
8+15	0.0192	0.06	Q	V	|	|	|
8+20	0.0196	0.06	Q	V	|	|	|
8+25	0.0201	0.06	Q	V	|	|	|
8+30	0.0205	0.06	Q	V	|	|	|
8+35	0.0210	0.07	Q	V	|	|	|
8+40	0.0215	0.07	Q	V	|	|	|
8+45	0.0219	0.07	Q	V	|	|	|
8+50	0.0224	0.07	Q	V	|	|	|
8+55	0.0229	0.07	Q	V	|	|	|
9+ 0	0.0234	0.07	Q	V	|	|	|
9+ 5	0.0239	0.08	Q	V	|	|	|
9+10	0.0245	0.08	Q	V	|	|	|
9+15	0.0251	0.08	Q	V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+20	0.0256	0.08	Q	V	|	|	|
9+25	0.0262	0.09	Q	V	|	|	|
9+30	0.0268	0.09	Q	V	|	|	|
9+35	0.0274	0.09	Q	V	|	|	|
9+40	0.0280	0.09	Q	V	|	|	|
9+45	0.0286	0.09	Q	V	|	|	|
9+50	0.0293	0.09	Q	V	|	|	|
9+55	0.0299	0.09	Q	V	|	|	|
10+ 0	0.0306	0.09	Q	V	|	|	|
10+ 5	0.0312	0.08	Q	V	|	|	|
10+10	0.0316	0.07	Q	V	|	|	|
10+15	0.0321	0.07	Q	V	|	|	|
10+20	0.0325	0.06	Q	V	|	|	|
10+25	0.0330	0.06	Q	V	|	|	|
10+30	0.0334	0.06	Q	|V	|	|	|
10+35	0.0339	0.07	Q	|V	|	|	|
10+40	0.0345	0.08	Q	|V	|	|	|
10+45	0.0351	0.09	Q	|V	|	|	|
10+50	0.0357	0.09	Q	|V	|	|	|
10+55	0.0363	0.09	Q	| V	|	|	|
11+ 0	0.0369	0.09	Q	| V	|	|	|
11+ 5	0.0374	0.08	Q	| V	|	|	|
11+10	0.0380	0.08	Q	| V	|	|	|
11+15	0.0386	0.08	Q	| V	|	|	|
11+20	0.0391	0.08	Q	| V	|	|	|
11+25	0.0397	0.08	Q	| V	|	|	|
11+30	0.0403	0.08	Q	| V	|	|	|
11+35	0.0408	0.08	Q	| V	|	|	|
11+40	0.0413	0.07	Q	| V	|	|	|
11+45	0.0418	0.07	Q	| V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+50	0.0423	0.07	Q	|	V	|	|
11+55	0.0429	0.08	Q	|	V	|	|
12+ 0	0.0434	0.08	Q	|	V	|	|
12+ 5	0.0440	0.09	Q	|	V	|	|
12+10	0.0447	0.10	Q	|	V	|	|
12+15	0.0454	0.11	Q	|	V	|	|
12+20	0.0462	0.11	Q	|	V	|	|
12+25	0.0470	0.11	Q	|	V	|	|
12+30	0.0477	0.11	Q	|	V	|	|
12+35	0.0487	0.14	Q	|	V	|	|
12+40	0.0500	0.19	Q	|	V	|	|
12+45	0.0515	0.21	Q	|	V	|	|
12+50	0.0530	0.23	Q	|	V	|	|
12+55	0.0548	0.26	|Q	|	V	|	|
13+ 0	0.0566	0.27	|Q	|	V	|	|
13+ 5	0.0590	0.34	|Q	|	V|	|	|
13+10	0.0622	0.46	|Q	|	V	|	|
13+15	0.0656	0.49	|Q	|	|V	|	|
13+20	0.0690	0.50	| Q	|	| V	|	|
13+25	0.0725	0.51	| Q	|	|	V	|
13+30	0.0760	0.51	| Q	|	|	V	|
13+35	0.0786	0.38	|Q	|	|	V	|
13+40	0.0797	0.16	Q	|	|	V	|
13+45	0.0805	0.11	Q	|	|	V	|
13+50	0.0812	0.10	Q	|	|	V	|
13+55	0.0819	0.10	Q	|	|	V	|
14+ 0	0.0825	0.10	Q	|	|	V	|
14+ 5	0.0835	0.15	Q	|	|	V	|
14+10	0.0851	0.23	Q	|	|	V	|
14+15	0.0868	0.25	Q	|	|	V	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+20	0.0885	0.24	Q	|	|	v|
14+25	0.0901	0.23	Q	|	|	v|
14+30	0.0916	0.23	Q	|	|	v
14+35	0.0932	0.23	Q	|	|	v
14+40	0.0948	0.23	Q	|	|	|v
14+45	0.0964	0.24	Q	|	|	|v
14+50	0.0980	0.23	Q	|	|	|v
14+55	0.0995	0.21	Q	|	|	|v
15+ 0	0.1009	0.21	Q	|	|	|v
15+ 5	0.1023	0.20	Q	|	|	|v
15+10	0.1035	0.18	Q	|	|	|v
15+15	0.1048	0.18	Q	|	|	|v
15+20	0.1059	0.17	Q	|	|	|v
15+25	0.1070	0.15	Q	|	|	|v
15+30	0.1080	0.15	Q	|	|	|v
15+35	0.1089	0.13	Q	|	|	|v
15+40	0.1095	0.09	Q	|	|	|v
15+45	0.1101	0.08	Q	|	|	|v
15+50	0.1106	0.08	Q	|	|	|v
15+55	0.1112	0.08	Q	|	|	|v
16+ 0	0.1118	0.08	Q	|	|	|v
16+ 5	0.1122	0.06	Q	|	|	|v
16+10	0.1124	0.03	Q	|	|	|v
16+15	0.1125	0.02	Q	|	|	|v
16+20	0.1126	0.02	Q	|	|	|v
16+25	0.1127	0.02	Q	|	|	|v
16+30	0.1129	0.02	Q	|	|	|v
16+35	0.1130	0.02	Q	|	|	|v
16+40	0.1131	0.01	Q	|	|	|v
16+45	0.1132	0.01	Q	|	|	|v

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

16+50	0.1132	0.01	Q	|	|	|	V
16+55	0.1133	0.01	Q	|	|	|	V
17+ 0	0.1134	0.01	Q	|	|	|	V
17+ 5	0.1135	0.02	Q	|	|	|	V
17+10	0.1137	0.02	Q	|	|	|	V
17+15	0.1138	0.02	Q	|	|	|	V
17+20	0.1140	0.02	Q	|	|	|	V
17+25	0.1141	0.02	Q	|	|	|	V
17+30	0.1143	0.02	Q	|	|	|	V
17+35	0.1144	0.02	Q	|	|	|	V
17+40	0.1146	0.02	Q	|	|	|	V
17+45	0.1147	0.02	Q	|	|	|	V
17+50	0.1148	0.02	Q	|	|	|	V
17+55	0.1150	0.02	Q	|	|	|	V
18+ 0	0.1151	0.02	Q	|	|	|	V
18+ 5	0.1152	0.02	Q	|	|	|	V
18+10	0.1153	0.02	Q	|	|	|	V
18+15	0.1154	0.02	Q	|	|	|	V
18+20	0.1156	0.02	Q	|	|	|	V
18+25	0.1157	0.02	Q	|	|	|	V
18+30	0.1158	0.02	Q	|	|	|	V
18+35	0.1159	0.02	Q	|	|	|	V
18+40	0.1160	0.01	Q	|	|	|	V
18+45	0.1161	0.01	Q	|	|	|	V
18+50	0.1162	0.01	Q	|	|	|	V
18+55	0.1162	0.01	Q	|	|	|	V
19+ 0	0.1163	0.01	Q	|	|	|	V
19+ 5	0.1164	0.01	Q	|	|	|	V
19+10	0.1164	0.01	Q	|	|	|	V
19+15	0.1165	0.01	Q	|	|	|	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	19+20	0.1166	0.01	Q				V
	19+25	0.1167	0.02	Q				V
	19+30	0.1169	0.02	Q				V
	19+35	0.1170	0.02	Q				V
	19+40	0.1171	0.01	Q				V
	19+45	0.1172	0.01	Q				V
	19+50	0.1172	0.01	Q				V
	19+55	0.1173	0.01	Q				V
	20+ 0	0.1174	0.01	Q				V
	20+ 5	0.1174	0.01	Q				V
	20+10	0.1175	0.01	Q				V
	20+15	0.1176	0.01	Q				V
	20+20	0.1177	0.01	Q				V
	20+25	0.1178	0.01	Q				
V|	20+30	0.1179	0.01	Q				
V|	20+35	0.1180	0.01	Q				
V|	20+40	0.1180	0.01	Q				
V|	20+45	0.1181	0.01	Q				
V|	20+50	0.1182	0.01	Q				
V|	20+55	0.1183	0.01	Q				
V|	21+ 0	0.1183	0.01	Q				
V|	21+ 5	0.1184	0.01	Q				
V|	21+10	0.1185	0.01	Q				
V|	21+15	0.1186	0.01	Q				
V|	21+20	0.1187	0.01	Q				
V|	21+25	0.1187	0.01	Q				
V|	21+30	0.1188	0.01	Q				
V|	21+35	0.1188	0.01	Q				
V|	21+40	0.1189	0.01	Q				
V|	21+45	0.1190	0.01	Q				

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	0.1191	0.01	Q	|	|	|
V|	21+55	0.1192	0.01	Q	|	|	|
V|	22+ 0	0.1192	0.01	Q	|	|	|
V|	22+ 5	0.1193	0.01	Q	|	|	|
V|	22+10	0.1194	0.01	Q	|	|	|
V|	22+15	0.1195	0.01	Q	|	|	|
V|	22+20	0.1195	0.01	Q	|	|	|
V|	22+25	0.1196	0.01	Q	|	|	|
V|	22+30	0.1197	0.01	Q	|	|	|
V|	22+35	0.1197	0.01	Q	|	|	|
V|	22+40	0.1198	0.01	Q	|	|	|
V|	22+45	0.1198	0.01	Q	|	|	|
V|	22+50	0.1199	0.01	Q	|	|	|
V|	22+55	0.1200	0.01	Q	|	|	|
V|	23+ 0	0.1200	0.01	Q	|	|	|
V|	23+ 5	0.1201	0.01	Q	|	|	|
V|	23+10	0.1201	0.01	Q	|	|	|
V|	23+15	0.1202	0.01	Q	|	|	|
V|	23+20	0.1203	0.01	Q	|	|	|
V|	23+25	0.1203	0.01	Q	|	|	|
V|	23+30	0.1204	0.01	Q	|	|	|
V|	23+35	0.1204	0.01	Q	|	|	|
V|	23+40	0.1205	0.01	Q	|	|	|
V|	23+45	0.1206	0.01	Q	|	|	|
V|	23+50	0.1206	0.01	Q	|	|	|
V|	23+55	0.1207	0.01	Q	|	|	|
V|	24+ 0	0.1207	0.01	Q	|	|	|
V|	24+ 5	0.1208	0.01	Q	|	|	|
V	24+10	0.1208	0.00	Q			
V	24+15	0.1208	0.00	Q			

V	24+20	0.1208	0.00	Q			
v							

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33prea245.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

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Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
0.009 Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
Length along longest watercourse = 0.161 Mi.
Mi. Length along longest watercourse measured to centroid = 0.065

Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.021	(0.352)	0.018	0.002
2	0.17	0.07	0.021	(0.350)	0.018	0.002
3	0.25	0.07	0.021	(0.349)	0.018	0.002
4	0.33	0.10	0.031	(0.348)	0.028	0.003
5	0.42	0.10	0.031	(0.346)	0.028	0.003
6	0.50	0.10	0.031	(0.345)	0.028	0.003
7	0.58	0.10	0.031	(0.344)	0.028	0.003
8	0.67	0.10	0.031	(0.342)	0.028	0.003
9	0.75	0.10	0.031	(0.341)	0.028	0.003
10	0.83	0.13	0.041	(0.340)	0.037	0.004
11	0.92	0.13	0.041	(0.338)	0.037	0.004
12	1.00	0.13	0.041	(0.337)	0.037	0.004
13	1.08	0.10	0.031	(0.336)	0.028	0.003
14	1.17	0.10	0.031	(0.334)	0.028	0.003
15	1.25	0.10	0.031	(0.333)	0.028	0.003
16	1.33	0.10	0.031	(0.332)	0.028	0.003
17	1.42	0.10	0.031	(0.330)	0.028	0.003
18	1.50	0.10	0.031	(0.329)	0.028	0.003
19	1.58	0.10	0.031	(0.328)	0.028	0.003
20	1.67	0.10	0.031	(0.326)	0.028	0.003
21	1.75	0.10	0.031	(0.325)	0.028	0.003
22	1.83	0.13	0.041	(0.324)	0.037	0.004
23	1.92	0.13	0.041	(0.322)	0.037	0.004
24	2.00	0.13	0.041	(0.321)	0.037	0.004
25	2.08	0.13	0.041	(0.320)	0.037	0.004
26	2.17	0.13	0.041	(0.318)	0.037	0.004
27	2.25	0.13	0.041	(0.317)	0.037	0.004
28	2.33	0.13	0.041	(0.316)	0.037	0.004
29	2.42	0.13	0.041	(0.315)	0.037	0.004
30	2.50	0.13	0.041	(0.313)	0.037	0.004
31	2.58	0.17	0.051	(0.312)	0.046	0.005
32	2.67	0.17	0.051	(0.311)	0.046	0.005
33	2.75	0.17	0.051	(0.310)	0.046	0.005
34	2.83	0.17	0.051	(0.308)	0.046	0.005
35	2.92	0.17	0.051	(0.307)	0.046	0.005
36	3.00	0.17	0.051	(0.306)	0.046	0.005
37	3.08	0.17	0.051	(0.304)	0.046	0.005
38	3.17	0.17	0.051	(0.303)	0.046	0.005
39	3.25	0.17	0.051	(0.302)	0.046	0.005
40	3.33	0.17	0.051	(0.301)	0.046	0.005
41	3.42	0.17	0.051	(0.299)	0.046	0.005
42	3.50	0.17	0.051	(0.298)	0.046	0.005
43	3.58	0.17	0.051	(0.297)	0.046	0.005
44	3.67	0.17	0.051	(0.296)	0.046	0.005
45	3.75	0.17	0.051	(0.294)	0.046	0.005
46	3.83	0.20	0.062	(0.293)	0.055	0.006
47	3.92	0.20	0.062	(0.292)	0.055	0.006
48	4.00	0.20	0.062	(0.291)	0.055	0.006
49	4.08	0.20	0.062	(0.289)	0.055	0.006
50	4.17	0.20	0.062	(0.288)	0.055	0.006
51	4.25	0.20	0.062	(0.287)	0.055	0.006
52	4.33	0.23	0.072	(0.286)	0.065	0.007
53	4.42	0.23	0.072	(0.285)	0.065	0.007
54	4.50	0.23	0.072	(0.283)	0.065	0.007
55	4.58	0.23	0.072	(0.282)	0.065	0.007
56	4.67	0.23	0.072	(0.281)	0.065	0.007
57	4.75	0.23	0.072	(0.280)	0.065	0.007

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

58	4.83	0.27	0.082	(0.278)	0.074	0.008
59	4.92	0.27	0.082	(0.277)	0.074	0.008
60	5.00	0.27	0.082	(0.276)	0.074	0.008
61	5.08	0.20	0.062	(0.275)	0.055	0.006
62	5.17	0.20	0.062	(0.274)	0.055	0.006
63	5.25	0.20	0.062	(0.272)	0.055	0.006
64	5.33	0.23	0.072	(0.271)	0.065	0.007
65	5.42	0.23	0.072	(0.270)	0.065	0.007
66	5.50	0.23	0.072	(0.269)	0.065	0.007
67	5.58	0.27	0.082	(0.268)	0.074	0.008
68	5.67	0.27	0.082	(0.267)	0.074	0.008
69	5.75	0.27	0.082	(0.265)	0.074	0.008
70	5.83	0.27	0.082	(0.264)	0.074	0.008
71	5.92	0.27	0.082	(0.263)	0.074	0.008
72	6.00	0.27	0.082	(0.262)	0.074	0.008
73	6.08	0.30	0.092	(0.261)	0.083	0.009
74	6.17	0.30	0.092	(0.260)	0.083	0.009
75	6.25	0.30	0.092	(0.258)	0.083	0.009
76	6.33	0.30	0.092	(0.257)	0.083	0.009
77	6.42	0.30	0.092	(0.256)	0.083	0.009
78	6.50	0.30	0.092	(0.255)	0.083	0.009
79	6.58	0.33	0.103	(0.254)	0.092	0.010
80	6.67	0.33	0.103	(0.253)	0.092	0.010
81	6.75	0.33	0.103	(0.252)	0.092	0.010
82	6.83	0.33	0.103	(0.250)	0.092	0.010
83	6.92	0.33	0.103	(0.249)	0.092	0.010
84	7.00	0.33	0.103	(0.248)	0.092	0.010
85	7.08	0.33	0.103	(0.247)	0.092	0.010
86	7.17	0.33	0.103	(0.246)	0.092	0.010
87	7.25	0.33	0.103	(0.245)	0.092	0.010
88	7.33	0.37	0.113	(0.244)	0.102	0.011
89	7.42	0.37	0.113	(0.243)	0.102	0.011
90	7.50	0.37	0.113	(0.241)	0.102	0.011
91	7.58	0.40	0.123	(0.240)	0.111	0.012
92	7.67	0.40	0.123	(0.239)	0.111	0.012
93	7.75	0.40	0.123	(0.238)	0.111	0.012
94	7.83	0.43	0.133	(0.237)	0.120	0.013
95	7.92	0.43	0.133	(0.236)	0.120	0.013
96	8.00	0.43	0.133	(0.235)	0.120	0.013
97	8.08	0.50	0.154	(0.234)	0.138	0.015
98	8.17	0.50	0.154	(0.233)	0.138	0.015
99	8.25	0.50	0.154	(0.232)	0.138	0.015
100	8.33	0.50	0.154	(0.230)	0.138	0.015
101	8.42	0.50	0.154	(0.229)	0.138	0.015
102	8.50	0.50	0.154	(0.228)	0.138	0.015
103	8.58	0.53	0.164	(0.227)	0.148	0.016
104	8.67	0.53	0.164	(0.226)	0.148	0.016
105	8.75	0.53	0.164	(0.225)	0.148	0.016
106	8.83	0.57	0.174	(0.224)	0.157	0.017
107	8.92	0.57	0.174	(0.223)	0.157	0.017
108	9.00	0.57	0.174	(0.222)	0.157	0.017
109	9.08	0.63	0.195	(0.221)	0.175	0.019
110	9.17	0.63	0.195	(0.220)	0.175	0.019
111	9.25	0.63	0.195	(0.219)	0.175	0.019
112	9.33	0.67	0.205	(0.218)	0.185	0.021
113	9.42	0.67	0.205	(0.217)	0.185	0.021
114	9.50	0.67	0.205	(0.216)	0.185	0.021
115	9.58	0.70	0.215	(0.215)	0.194	0.022
116	9.67	0.70	0.215	(0.214)	0.194	0.022
117	9.75	0.70	0.215	(0.213)	0.194	0.022

118	9.83	0.73	0.226	(0.212)	0.203	0.023
119	9.92	0.73	0.226	(0.211)	0.203	0.023
120	10.00	0.73	0.226	(0.210)	0.203	0.023
121	10.08	0.50	0.154	(0.208)	0.138	0.015
122	10.17	0.50	0.154	(0.207)	0.138	0.015
123	10.25	0.50	0.154	(0.206)	0.138	0.015
124	10.33	0.50	0.154	(0.205)	0.138	0.015
125	10.42	0.50	0.154	(0.204)	0.138	0.015
126	10.50	0.50	0.154	(0.203)	0.138	0.015
127	10.58	0.67	0.205	(0.202)	0.185	0.021
128	10.67	0.67	0.205	(0.201)	0.185	0.021
129	10.75	0.67	0.205	(0.201)	0.185	0.021
130	10.83	0.67	0.205	(0.200)	0.185	0.021
131	10.92	0.67	0.205	(0.199)	0.185	0.021
132	11.00	0.67	0.205	(0.198)	0.185	0.021
133	11.08	0.63	0.195	(0.197)	0.175	0.019
134	11.17	0.63	0.195	(0.196)	0.175	0.019
135	11.25	0.63	0.195	(0.195)	0.175	0.019
136	11.33	0.63	0.195	(0.194)	0.175	0.019
137	11.42	0.63	0.195	(0.193)	0.175	0.019
138	11.50	0.63	0.195	(0.192)	0.175	0.019
139	11.58	0.57	0.174	(0.191)	0.157	0.017
140	11.67	0.57	0.174	(0.190)	0.157	0.017
141	11.75	0.57	0.174	(0.189)	0.157	0.017
142	11.83	0.60	0.185	(0.188)	0.166	0.018
143	11.92	0.60	0.185	(0.187)	0.166	0.018
144	12.00	0.60	0.185	(0.186)	0.166	0.018
145	12.08	0.83	0.256	0.185 (0.231)		0.071
146	12.17	0.83	0.256	0.184 (0.231)		0.072
147	12.25	0.83	0.256	0.183 (0.231)		0.073
148	12.33	0.87	0.267	0.182 (0.240)		0.084
149	12.42	0.87	0.267	0.182 (0.240)		0.085
150	12.50	0.87	0.267	0.181 (0.240)		0.086
151	12.58	0.93	0.287	0.180 (0.259)		0.108
152	12.67	0.93	0.287	0.179 (0.259)		0.108
153	12.75	0.93	0.287	0.178 (0.259)		0.109
154	12.83	0.97	0.298	0.177 (0.268)		0.121
155	12.92	0.97	0.298	0.176 (0.268)		0.121
156	13.00	0.97	0.298	0.175 (0.268)		0.122
157	13.08	1.13	0.349	0.174 (0.314)		0.174
158	13.17	1.13	0.349	0.173 (0.314)		0.175
159	13.25	1.13	0.349	0.173 (0.314)		0.176
160	13.33	1.13	0.349	0.172 (0.314)		0.177
161	13.42	1.13	0.349	0.171 (0.314)		0.178
162	13.50	1.13	0.349	0.170 (0.314)		0.179
163	13.58	0.77	0.236	0.169 (0.212)		0.067
164	13.67	0.77	0.236	0.168 (0.212)		0.068
165	13.75	0.77	0.236	0.167 (0.212)		0.069
166	13.83	0.77	0.236	0.166 (0.212)		0.069
167	13.92	0.77	0.236	0.166 (0.212)		0.070
168	14.00	0.77	0.236	0.165 (0.212)		0.071
169	14.08	0.90	0.277	0.164 (0.249)		0.113
170	14.17	0.90	0.277	0.163 (0.249)		0.114
171	14.25	0.90	0.277	0.162 (0.249)		0.115
172	14.33	0.87	0.267	0.161 (0.240)		0.105
173	14.42	0.87	0.267	0.161 (0.240)		0.106
174	14.50	0.87	0.267	0.160 (0.240)		0.107
175	14.58	0.87	0.267	0.159 (0.240)		0.108
176	14.67	0.87	0.267	0.158 (0.240)		0.109
177	14.75	0.87	0.267	0.157 (0.240)		0.109

178	14.83	0.83	0.256	0.157	(0.231)	0.100
179	14.92	0.83	0.256	0.156	(0.231)	0.101
180	15.00	0.83	0.256	0.155	(0.231)	0.102
181	15.08	0.80	0.246	0.154	(0.222)	0.092
182	15.17	0.80	0.246	0.153	(0.222)	0.093
183	15.25	0.80	0.246	0.153	(0.222)	0.094
184	15.33	0.77	0.236	0.152	(0.212)	0.084
185	15.42	0.77	0.236	0.151	(0.212)	0.085
186	15.50	0.77	0.236	0.150	(0.212)	0.086
187	15.58	0.63	0.195	0.149	(0.175)	0.045
188	15.67	0.63	0.195	0.149	(0.175)	0.046
189	15.75	0.63	0.195	0.148	(0.175)	0.047
190	15.83	0.63	0.195	0.147	(0.175)	0.048
191	15.92	0.63	0.195	0.146	(0.175)	0.048
192	16.00	0.63	0.195	0.146	(0.175)	0.049
193	16.08	0.13	0.041	(0.145)	0.037	0.004
194	16.17	0.13	0.041	(0.144)	0.037	0.004
195	16.25	0.13	0.041	(0.143)	0.037	0.004
196	16.33	0.13	0.041	(0.143)	0.037	0.004
197	16.42	0.13	0.041	(0.142)	0.037	0.004
198	16.50	0.13	0.041	(0.141)	0.037	0.004
199	16.58	0.10	0.031	(0.141)	0.028	0.003
200	16.67	0.10	0.031	(0.140)	0.028	0.003
201	16.75	0.10	0.031	(0.139)	0.028	0.003
202	16.83	0.10	0.031	(0.138)	0.028	0.003
203	16.92	0.10	0.031	(0.138)	0.028	0.003
204	17.00	0.10	0.031	(0.137)	0.028	0.003
205	17.08	0.17	0.051	(0.136)	0.046	0.005
206	17.17	0.17	0.051	(0.136)	0.046	0.005
207	17.25	0.17	0.051	(0.135)	0.046	0.005
208	17.33	0.17	0.051	(0.134)	0.046	0.005
209	17.42	0.17	0.051	(0.134)	0.046	0.005
210	17.50	0.17	0.051	(0.133)	0.046	0.005
211	17.58	0.17	0.051	(0.132)	0.046	0.005
212	17.67	0.17	0.051	(0.132)	0.046	0.005
213	17.75	0.17	0.051	(0.131)	0.046	0.005
214	17.83	0.13	0.041	(0.130)	0.037	0.004
215	17.92	0.13	0.041	(0.130)	0.037	0.004
216	18.00	0.13	0.041	(0.129)	0.037	0.004
217	18.08	0.13	0.041	(0.128)	0.037	0.004
218	18.17	0.13	0.041	(0.128)	0.037	0.004
219	18.25	0.13	0.041	(0.127)	0.037	0.004
220	18.33	0.13	0.041	(0.127)	0.037	0.004
221	18.42	0.13	0.041	(0.126)	0.037	0.004
222	18.50	0.13	0.041	(0.125)	0.037	0.004
223	18.58	0.10	0.031	(0.125)	0.028	0.003
224	18.67	0.10	0.031	(0.124)	0.028	0.003
225	18.75	0.10	0.031	(0.124)	0.028	0.003
226	18.83	0.07	0.021	(0.123)	0.018	0.002
227	18.92	0.07	0.021	(0.122)	0.018	0.002
228	19.00	0.07	0.021	(0.122)	0.018	0.002
229	19.08	0.10	0.031	(0.121)	0.028	0.003
230	19.17	0.10	0.031	(0.121)	0.028	0.003
231	19.25	0.10	0.031	(0.120)	0.028	0.003
232	19.33	0.13	0.041	(0.119)	0.037	0.004
233	19.42	0.13	0.041	(0.119)	0.037	0.004
234	19.50	0.13	0.041	(0.118)	0.037	0.004
235	19.58	0.10	0.031	(0.118)	0.028	0.003
236	19.67	0.10	0.031	(0.117)	0.028	0.003
237	19.75	0.10	0.031	(0.117)	0.028	0.003

238	19.83	0.07	0.021	(0.116)	0.018	0.002
239	19.92	0.07	0.021	(0.116)	0.018	0.002
240	20.00	0.07	0.021	(0.115)	0.018	0.002
241	20.08	0.10	0.031	(0.115)	0.028	0.003
242	20.17	0.10	0.031	(0.114)	0.028	0.003
243	20.25	0.10	0.031	(0.114)	0.028	0.003
244	20.33	0.10	0.031	(0.113)	0.028	0.003
245	20.42	0.10	0.031	(0.113)	0.028	0.003
246	20.50	0.10	0.031	(0.112)	0.028	0.003
247	20.58	0.10	0.031	(0.112)	0.028	0.003
248	20.67	0.10	0.031	(0.111)	0.028	0.003
249	20.75	0.10	0.031	(0.111)	0.028	0.003
250	20.83	0.07	0.021	(0.110)	0.018	0.002
251	20.92	0.07	0.021	(0.110)	0.018	0.002
252	21.00	0.07	0.021	(0.110)	0.018	0.002
253	21.08	0.10	0.031	(0.109)	0.028	0.003
254	21.17	0.10	0.031	(0.109)	0.028	0.003
255	21.25	0.10	0.031	(0.108)	0.028	0.003
256	21.33	0.07	0.021	(0.108)	0.018	0.002
257	21.42	0.07	0.021	(0.107)	0.018	0.002
258	21.50	0.07	0.021	(0.107)	0.018	0.002
259	21.58	0.10	0.031	(0.107)	0.028	0.003
260	21.67	0.10	0.031	(0.106)	0.028	0.003
261	21.75	0.10	0.031	(0.106)	0.028	0.003
262	21.83	0.07	0.021	(0.105)	0.018	0.002
263	21.92	0.07	0.021	(0.105)	0.018	0.002
264	22.00	0.07	0.021	(0.105)	0.018	0.002
265	22.08	0.10	0.031	(0.104)	0.028	0.003
266	22.17	0.10	0.031	(0.104)	0.028	0.003
267	22.25	0.10	0.031	(0.104)	0.028	0.003
268	22.33	0.07	0.021	(0.103)	0.018	0.002
269	22.42	0.07	0.021	(0.103)	0.018	0.002
270	22.50	0.07	0.021	(0.103)	0.018	0.002
271	22.58	0.07	0.021	(0.102)	0.018	0.002
272	22.67	0.07	0.021	(0.102)	0.018	0.002
273	22.75	0.07	0.021	(0.102)	0.018	0.002
274	22.83	0.07	0.021	(0.102)	0.018	0.002
275	22.92	0.07	0.021	(0.101)	0.018	0.002
276	23.00	0.07	0.021	(0.101)	0.018	0.002
277	23.08	0.07	0.021	(0.101)	0.018	0.002
278	23.17	0.07	0.021	(0.101)	0.018	0.002
279	23.25	0.07	0.021	(0.100)	0.018	0.002
280	23.33	0.07	0.021	(0.100)	0.018	0.002
281	23.42	0.07	0.021	(0.100)	0.018	0.002
282	23.50	0.07	0.021	(0.100)	0.018	0.002
283	23.58	0.07	0.021	(0.100)	0.018	0.002
284	23.67	0.07	0.021	(0.100)	0.018	0.002
285	23.75	0.07	0.021	(0.099)	0.018	0.002
286	23.83	0.07	0.021	(0.099)	0.018	0.002
287	23.92	0.07	0.021	(0.099)	0.018	0.002
288	24.00	0.07	0.021	(0.099)	0.018	0.002

(Loss Rate Not Used)

Sum =	100.0	Sum =	6.6
Flood volume =	Effective rainfall	0.55(In)	
times area	5.5(Ac.)/[(In)/(Ft.)] =	0.3(Ac.Ft)	
Total soil loss =	2.02(In)		
Total soil loss =	0.930(Ac.Ft)		
Total rainfall =	2.56(In)		
Flood volume =	10963.5 Cubic Feet		
Total soil loss =	40520.4 Cubic Feet		

-- Peak flow rate of this hydrograph = 0.993(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

-- Hydrograph in 5 Minute intervals ((CFS))

--
Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0000		0.00	Q			
0+10	0.0001		0.01	Q			
0+15	0.0002		0.01	Q			
0+20	0.0003		0.01	Q			
0+25	0.0004		0.02	Q			
0+30	0.0005		0.02	Q			
0+35	0.0006		0.02	Q			
0+40	0.0007		0.02	Q			
0+45	0.0008		0.02	Q			
0+50	0.0010		0.02	Q			
0+55	0.0011		0.02	Q			
1+ 0	0.0013		0.02	Q			
1+ 5	0.0014		0.02	Q			
1+10	0.0016		0.02	Q			
1+15	0.0017		0.02	Q			
1+20	0.0018		0.02	Q			
1+25	0.0019		0.02	Q			
1+30	0.0020		0.02	Q			
1+35	0.0021		0.02	Q			
1+40	0.0023		0.02	Q			
1+45	0.0024		0.02	Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+50	0.0025	0.02	Q	|	|	|
1+55	0.0027	0.02	Q	|	|	|
2+ 0	0.0028	0.02	Q	|	|	|
2+ 5	0.0030	0.02	Q	|	|	|
2+10	0.0031	0.02	Q	|	|	|
2+15	0.0033	0.02	Q	|	|	|
2+20	0.0035	0.02	Q	|	|	|
2+25	0.0036	0.02	Q	|	|	|
2+30	0.0038	0.02	Q	|	|	|
2+35	0.0039	0.02	Q	|	|	|
2+40	0.0041	0.03	Q	|	|	|
2+45	0.0043	0.03	Q	|	|	|
2+50	0.0045	0.03	Q	|	|	|
2+55	0.0047	0.03	Q	|	|	|
3+ 0	0.0049	0.03	Q	|	|	|
3+ 5	0.0051	0.03	Q	|	|	|
3+10	0.0053	0.03	Q	|	|	|
3+15	0.0055	0.03	Q	|	|	|
3+20	0.0057	0.03	Q	|	|	|
3+25	0.0059	0.03	Q	|	|	|
3+30	0.0061	0.03	Q	|	|	|
3+35	0.0063	0.03	QV	|	|	|
3+40	0.0065	0.03	QV	|	|	|
3+45	0.0067	0.03	QV	|	|	|
3+50	0.0069	0.03	QV	|	|	|
3+55	0.0071	0.03	QV	|	|	|
4+ 0	0.0074	0.03	QV	|	|	|
4+ 5	0.0076	0.03	QV	|	|	|
4+10	0.0078	0.03	QV	|	|	|
4+15	0.0081	0.03	QV	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4+20	0.0083	0.04	QV	|	|	|
4+25	0.0086	0.04	QV	|	|	|
4+30	0.0089	0.04	QV	|	|	|
4+35	0.0091	0.04	QV	|	|	|
4+40	0.0094	0.04	QV	|	|	|
4+45	0.0097	0.04	QV	|	|	|
4+50	0.0100	0.04	QV	|	|	|
4+55	0.0103	0.04	QV	|	|	|
5+ 0	0.0106	0.05	QV	|	|	|
5+ 5	0.0109	0.04	QV	|	|	|
5+10	0.0111	0.04	QV	|	|	|
5+15	0.0114	0.03	QV	|	|	|
5+20	0.0116	0.04	QV	|	|	|
5+25	0.0119	0.04	QV	|	|	|
5+30	0.0122	0.04	QV	|	|	|
5+35	0.0125	0.04	QV	|	|	|
5+40	0.0128	0.04	Q V	|	|	|
5+45	0.0131	0.05	Q V	|	|	|
5+50	0.0134	0.05	Q V	|	|	|
5+55	0.0137	0.05	Q V	|	|	|
6+ 0	0.0140	0.05	Q V	|	|	|
6+ 5	0.0144	0.05	Q V	|	|	|
6+10	0.0147	0.05	Q V	|	|	|
6+15	0.0151	0.05	Q V	|	|	|
6+20	0.0154	0.05	Q V	|	|	|
6+25	0.0158	0.05	Q V	|	|	|
6+30	0.0161	0.05	Q V	|	|	|
6+35	0.0165	0.05	Q V	|	|	|
6+40	0.0169	0.06	Q V	|	|	|
6+45	0.0173	0.06	Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

6+50	0.0177	0.06	Q	V	|	|	|
6+55	0.0181	0.06	Q	V	|	|	|
7+ 0	0.0185	0.06	Q	V	|	|	|
7+ 5	0.0189	0.06	Q	V	|	|	|
7+10	0.0192	0.06	Q	V	|	|	|
7+15	0.0196	0.06	Q	V	|	|	|
7+20	0.0200	0.06	Q	V	|	|	|
7+25	0.0205	0.06	Q	V	|	|	|
7+30	0.0209	0.06	Q	V	|	|	|
7+35	0.0214	0.06	Q	V	|	|	|
7+40	0.0218	0.07	Q	V	|	|	|
7+45	0.0223	0.07	Q	V	|	|	|
7+50	0.0228	0.07	Q	V	|	|	|
7+55	0.0233	0.07	Q	V	|	|	|
8+ 0	0.0238	0.07	Q	V	|	|	|
8+ 5	0.0243	0.08	Q	V	|	|	|
8+10	0.0249	0.08	Q	V	|	|	|
8+15	0.0255	0.09	Q	V	|	|	|
8+20	0.0261	0.09	Q	V	|	|	|
8+25	0.0267	0.09	Q	V	|	|	|
8+30	0.0273	0.09	Q	V	|	|	|
8+35	0.0279	0.09	Q	V	|	|	|
8+40	0.0285	0.09	Q	V	|	|	|
8+45	0.0291	0.09	Q	V	|	|	|
8+50	0.0298	0.09	Q	V	|	|	|
8+55	0.0304	0.10	Q	V	|	|	|
9+ 0	0.0311	0.10	Q	V	|	|	|
9+ 5	0.0318	0.10	Q	V	|	|	|
9+10	0.0325	0.11	Q	V	|	|	|
9+15	0.0333	0.11	Q	V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+20	0.0341	0.11	Q	V	|	|	|
9+25	0.0348	0.11	Q	V	|	|	|
9+30	0.0356	0.11	Q	V	|	|	|
9+35	0.0364	0.12	Q	V	|	|	|
9+40	0.0372	0.12	Q	V	|	|	|
9+45	0.0381	0.12	Q	V	|	|	|
9+50	0.0389	0.12	Q	V	|	|	|
9+55	0.0398	0.13	Q	V	|	|	|
10+ 0	0.0406	0.13	Q	V	|	|	|
10+ 5	0.0414	0.11	Q	V	|	|	|
10+10	0.0420	0.09	Q	V	|	|	|
10+15	0.0426	0.09	Q	V	|	|	|
10+20	0.0432	0.09	Q	V	|	|	|
10+25	0.0438	0.09	Q	V	|	|	|
10+30	0.0444	0.09	Q	V	|	|	|
10+35	0.0451	0.10	Q	V	|	|	|
10+40	0.0458	0.11	Q	V	|	|	|
10+45	0.0466	0.11	Q	V	|	|	|
10+50	0.0474	0.11	Q	V	|	|	|
10+55	0.0482	0.11	Q	V	|	|	|
11+ 0	0.0490	0.11	Q	V	|	|	|
11+ 5	0.0498	0.11	Q	V	|	|	|
11+10	0.0505	0.11	Q	V	|	|	|
11+15	0.0513	0.11	Q	V	|	|	|
11+20	0.0520	0.11	Q	V	|	|	|
11+25	0.0528	0.11	Q	V	|	|	|
11+30	0.0535	0.11	Q	V	|	|	|
11+35	0.0542	0.10	Q	V	|	|	|
11+40	0.0549	0.10	Q	V	|	|	|
11+45	0.0556	0.10	Q	V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+50	0.0563	0.10	Q	v	|	|	|
11+55	0.0570	0.10	Q	v	|	|	|
12+ 0	0.0577	0.10	Q	v	|	|	|
12+ 5	0.0590	0.20	Q	v	|	|	|
12+10	0.0615	0.36	|Q	v	|	|	|
12+15	0.0642	0.40	|Q	v	|	|	|
12+20	0.0672	0.43	|Q	v	|	|	|
12+25	0.0704	0.46	|Q	|v	|	|	|
12+30	0.0736	0.47	|Q	|v	|	|	|
12+35	0.0772	0.52	| Q	| v	|	|	|
12+40	0.0812	0.58	| Q	| v	|	|	|
12+45	0.0854	0.60	| Q	| v	|	|	|
12+50	0.0897	0.63	| Q	| v	|	|	|
12+55	0.0943	0.67	| Q	| v	|	|	|
13+ 0	0.0989	0.68	| Q	| v	|	|	|
13+ 5	0.1043	0.78	| Q	| v	|	|	|
13+10	0.1107	0.93	| Q	| v	|	|	|
13+15	0.1174	0.97	| Q	| v	|	|	|
13+20	0.1242	0.98	| Q	| v	|	|	|
13+25	0.1310	0.99	| Q	| v	|	|	|
13+30	0.1378	0.99	| Q	| |v	|	|	|
13+35	0.1433	0.79	| Q	| | v	|	|	|
13+40	0.1464	0.46	|Q	| | v	|	|	|
13+45	0.1492	0.40	|Q	| | v	|	|	|
13+50	0.1518	0.39	|Q	| | v	|	|	|
13+55	0.1545	0.39	|Q	| | v	|	|	|
14+ 0	0.1572	0.39	|Q	| | v	|	|	|
14+ 5	0.1605	0.47	|Q	| | v	|	|	|
14+10	0.1646	0.60	| Q	| | v	|	|	|
14+15	0.1689	0.63	| Q	| | v	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+20	0.1732	0.62	| Q	|	|	v	|
14+25	0.1773	0.60	| Q	|	|	v	|
14+30	0.1814	0.59	| Q	|	|	v	|
14+35	0.1855	0.60	| Q	|	|	v	|
14+40	0.1896	0.60	| Q	|	|	v	|
14+45	0.1938	0.61	| Q	|	|	v	|
14+50	0.1979	0.59	| Q	|	|	|v	|
14+55	0.2018	0.57	| Q	|	|	| v	|
15+ 0	0.2057	0.56	| Q	|	|	| v	|
15+ 5	0.2094	0.55	| Q	|	|	| v	|
15+10	0.2130	0.52	| Q	|	|	| v	|
15+15	0.2166	0.52	| Q	|	|	| v	|
15+20	0.2201	0.50	| Q	|	|	| v	|
15+25	0.2234	0.48	|Q	|	|	| v	|
15+30	0.2267	0.48	|Q	|	|	| v	|
15+35	0.2294	0.40	|Q	|	|	| v	|
15+40	0.2314	0.29	|Q	|	|	| v	|
15+45	0.2332	0.26	|Q	|	|	| v	|
15+50	0.2351	0.26	|Q	|	|	| v	|
15+55	0.2369	0.27	|Q	|	|	| v	|
16+ 0	0.2388	0.27	|Q	|	|	| v	|
16+ 5	0.2401	0.19	Q	|	|	| v	|
16+10	0.2405	0.06	Q	|	|	| v	|
16+15	0.2407	0.03	Q	|	|	| v	|
16+20	0.2408	0.02	Q	|	|	| v	|
16+25	0.2410	0.02	Q	|	|	| v	|
16+30	0.2412	0.02	Q	|	|	| v	|
16+35	0.2413	0.02	Q	|	|	| v	|
16+40	0.2414	0.02	Q	|	|	| v	|
16+45	0.2415	0.02	Q	|	|	| v	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	16+50	0.2417	0.02	Q				V
	16+55	0.2418	0.02	Q				V
	17+ 0	0.2419	0.02	Q				V
	17+ 5	0.2420	0.02	Q				V
	17+10	0.2422	0.03	Q				V
	17+15	0.2424	0.03	Q				V
	17+20	0.2426	0.03	Q				V
	17+25	0.2428	0.03	Q				V
	17+30	0.2430	0.03	Q				V
	17+35	0.2432	0.03	Q				V
	17+40	0.2434	0.03	Q				V
	17+45	0.2436	0.03	Q				V
	17+50	0.2438	0.03	Q				V
	17+55	0.2439	0.02	Q				V
	18+ 0	0.2441	0.02	Q				V
	18+ 5	0.2443	0.02	Q				V
	18+10	0.2444	0.02	Q				V
	18+15	0.2446	0.02	Q				V
	18+20	0.2447	0.02	Q				V
	18+25	0.2449	0.02	Q				V
	18+30	0.2451	0.02	Q				V
	18+35	0.2452	0.02	Q				V
	18+40	0.2453	0.02	Q				V
	18+45	0.2454	0.02	Q				V
V|	18+50	0.2455	0.02	Q				V
V|	18+55	0.2456	0.01	Q				V
V|	19+ 0	0.2457	0.01	Q				V
V|	19+ 5	0.2458	0.01	Q				V
V|	19+10	0.2459	0.02	Q				V
V|	19+15	0.2460	0.02	Q				V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	19+20	0.2462	0.02	Q	|	|	|
V|	19+25	0.2463	0.02	Q	|	|	|
V|	19+30	0.2465	0.02	Q	|	|	|
V|	19+35	0.2466	0.02	Q	|	|	|
V|	19+40	0.2467	0.02	Q	|	|	|
V|	19+45	0.2469	0.02	Q	|	|	|
V|	19+50	0.2470	0.02	Q	|	|	|
V|	19+55	0.2470	0.01	Q	|	|	|
V|	20+ 0	0.2471	0.01	Q	|	|	|
V|	20+ 5	0.2472	0.01	Q	|	|	|
V|	20+10	0.2473	0.02	Q	|	|	|
V|	20+15	0.2475	0.02	Q	|	|	|
V|	20+20	0.2476	0.02	Q	|	|	|
V|	20+25	0.2477	0.02	Q	|	|	|
V|	20+30	0.2478	0.02	Q	|	|	|
V|	20+35	0.2479	0.02	Q	|	|	|
V|	20+40	0.2480	0.02	Q	|	|	|
V|	20+45	0.2482	0.02	Q	|	|	|
V|	20+50	0.2483	0.02	Q	|	|	|
V|	20+55	0.2483	0.01	Q	|	|	|
V|	21+ 0	0.2484	0.01	Q	|	|	|
V|	21+ 5	0.2485	0.01	Q	|	|	|
V|	21+10	0.2486	0.02	Q	|	|	|
V|	21+15	0.2488	0.02	Q	|	|	|
V|	21+20	0.2489	0.02	Q	|	|	|
V|	21+25	0.2489	0.01	Q	|	|	|
V|	21+30	0.2490	0.01	Q	|	|	|
V|	21+35	0.2491	0.01	Q	|	|	|
V|	21+40	0.2492	0.02	Q	|	|	|
V|	21+45	0.2493	0.02	Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	0.2494	0.02	Q	|	|	|
V|	21+55	0.2495	0.01	Q	|	|	|
V|	22+ 0	0.2496	0.01	Q	|	|	|
V|	22+ 5	0.2497	0.01	Q	|	|	|
V|	22+10	0.2498	0.02	Q	|	|	|
V|	22+15	0.2499	0.02	Q	|	|	|
V|	22+20	0.2500	0.02	Q	|	|	|
V|	22+25	0.2501	0.01	Q	|	|	|
V|	22+30	0.2502	0.01	Q	|	|	|
V|	22+35	0.2503	0.01	Q	|	|	|
V|	22+40	0.2504	0.01	Q	|	|	|
V|	22+45	0.2504	0.01	Q	|	|	|
V|	22+50	0.2505	0.01	Q	|	|	|
V|	22+55	0.2506	0.01	Q	|	|	|
V|	23+ 0	0.2507	0.01	Q	|	|	|
V|	23+ 5	0.2508	0.01	Q	|	|	|
V|	23+10	0.2508	0.01	Q	|	|	|
V|	23+15	0.2509	0.01	Q	|	|	|
V|	23+20	0.2510	0.01	Q	|	|	|
V|	23+25	0.2511	0.01	Q	|	|	|
V|	23+30	0.2511	0.01	Q	|	|	|
V|	23+35	0.2512	0.01	Q	|	|	|
V|	23+40	0.2513	0.01	Q	|	|	|
V|	23+45	0.2514	0.01	Q	|	|	|
V|	23+50	0.2515	0.01	Q	|	|	|
V|	23+55	0.2515	0.01	Q	|	|	|
V|	24+ 0	0.2516	0.01	Q	|	|	|
V|	24+ 5	0.2517	0.01	Q	|	|	|
V|	24+10	0.2517	0.00	Q	|	|	|
V|	24+15	0.2517	0.00	Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

v|	24+20	0.2517	0.00	Q	|	|	|
v							

moval 33prea2410

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2
Study date 02/19/21 File: moval 33prea2410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
0.009 Sq. Mi. Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00(Ft.)
Length along longest watercourse = 0.161 Mi.
Length along longest watercourse measured to centroid = 0.065 Mi.
Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
5.53	1.93	10.67

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
5.53	4.64	25.66

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.930(In)
Area Averaged 100-Year Rainfall = 4.640(In)

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33prea2410

Point rain (area averaged) = 3.045(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 3.045(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 5.530 84.00 0.000
 Total Area Entered = 5.53(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
						Sum (F) = 0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of Lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	157.948	32.675
2	0.167	315.896	53.715
3	0.250	473.844	10.920
4	0.333	631.792	2.028
5	0.417	789.740	0.662
Sum = 100.000			Sum= 5.573

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
			Max	Low	
1	0.08	0.07	(0.352)	0.022	0.002
2	0.17	0.07	(0.350)	0.022	0.002
3	0.25	0.07	(0.349)	0.022	0.002
4	0.33	0.10	(0.348)	0.033	0.004
5	0.42	0.10	(0.346)	0.033	0.004
6	0.50	0.10	(0.345)	0.033	0.004
7	0.58	0.10	(0.344)	0.033	0.004
8	0.67	0.10	(0.342)	0.033	0.004
9	0.75	0.10	(0.341)	0.033	0.004
10	0.83	0.13	(0.340)	0.044	0.005
11	0.92	0.13	(0.338)	0.044	0.005
12	1.00	0.13	(0.337)	0.044	0.005
13	1.08	0.10	(0.336)	0.033	0.004
14	1.17	0.10	(0.334)	0.033	0.004
15	1.25	0.10	(0.333)	0.033	0.004
16	1.33	0.10	(0.332)	0.033	0.004
17	1.42	0.10	(0.330)	0.033	0.004
18	1.50	0.10	(0.329)	0.033	0.004
19	1.58	0.10	(0.328)	0.033	0.004
20	1.67	0.10	(0.326)	0.033	0.004

21	1. 75	0. 10	0. 037	moval 33prea2410 (0. 325)	0. 033	0. 004
22	1. 83	0. 13	0. 049	(0. 324)	0. 044	0. 005
23	1. 92	0. 13	0. 049	(0. 322)	0. 044	0. 005
24	2. 00	0. 13	0. 049	(0. 321)	0. 044	0. 005
25	2. 08	0. 13	0. 049	(0. 320)	0. 044	0. 005
26	2. 17	0. 13	0. 049	(0. 318)	0. 044	0. 005
27	2. 25	0. 13	0. 049	(0. 317)	0. 044	0. 005
28	2. 33	0. 13	0. 049	(0. 316)	0. 044	0. 005
29	2. 42	0. 13	0. 049	(0. 315)	0. 044	0. 005
30	2. 50	0. 13	0. 049	(0. 313)	0. 044	0. 005
31	2. 58	0. 17	0. 061	(0. 312)	0. 055	0. 006
32	2. 67	0. 17	0. 061	(0. 311)	0. 055	0. 006
33	2. 75	0. 17	0. 061	(0. 310)	0. 055	0. 006
34	2. 83	0. 17	0. 061	(0. 308)	0. 055	0. 006
35	2. 92	0. 17	0. 061	(0. 307)	0. 055	0. 006
36	3. 00	0. 17	0. 061	(0. 306)	0. 055	0. 006
37	3. 08	0. 17	0. 061	(0. 304)	0. 055	0. 006
38	3. 17	0. 17	0. 061	(0. 303)	0. 055	0. 006
39	3. 25	0. 17	0. 061	(0. 302)	0. 055	0. 006
40	3. 33	0. 17	0. 061	(0. 301)	0. 055	0. 006
41	3. 42	0. 17	0. 061	(0. 299)	0. 055	0. 006
42	3. 50	0. 17	0. 061	(0. 298)	0. 055	0. 006
43	3. 58	0. 17	0. 061	(0. 297)	0. 055	0. 006
44	3. 67	0. 17	0. 061	(0. 296)	0. 055	0. 006
45	3. 75	0. 17	0. 061	(0. 294)	0. 055	0. 006
46	3. 83	0. 20	0. 073	(0. 293)	0. 066	0. 007
47	3. 92	0. 20	0. 073	(0. 292)	0. 066	0. 007
48	4. 00	0. 20	0. 073	(0. 291)	0. 066	0. 007
49	4. 08	0. 20	0. 073	(0. 289)	0. 066	0. 007
50	4. 17	0. 20	0. 073	(0. 288)	0. 066	0. 007
51	4. 25	0. 20	0. 073	(0. 287)	0. 066	0. 007
52	4. 33	0. 23	0. 085	(0. 286)	0. 077	0. 009
53	4. 42	0. 23	0. 085	(0. 285)	0. 077	0. 009
54	4. 50	0. 23	0. 085	(0. 283)	0. 077	0. 009
55	4. 58	0. 23	0. 085	(0. 282)	0. 077	0. 009
56	4. 67	0. 23	0. 085	(0. 281)	0. 077	0. 009
57	4. 75	0. 23	0. 085	(0. 280)	0. 077	0. 009
58	4. 83	0. 27	0. 097	(0. 278)	0. 088	0. 010
59	4. 92	0. 27	0. 097	(0. 277)	0. 088	0. 010
60	5. 00	0. 27	0. 097	(0. 276)	0. 088	0. 010
61	5. 08	0. 20	0. 073	(0. 275)	0. 066	0. 007
62	5. 17	0. 20	0. 073	(0. 274)	0. 066	0. 007
63	5. 25	0. 20	0. 073	(0. 272)	0. 066	0. 007
64	5. 33	0. 23	0. 085	(0. 271)	0. 077	0. 009
65	5. 42	0. 23	0. 085	(0. 270)	0. 077	0. 009
66	5. 50	0. 23	0. 085	(0. 269)	0. 077	0. 009
67	5. 58	0. 27	0. 097	(0. 268)	0. 088	0. 010
68	5. 67	0. 27	0. 097	(0. 267)	0. 088	0. 010
69	5. 75	0. 27	0. 097	(0. 265)	0. 088	0. 010
70	5. 83	0. 27	0. 097	(0. 264)	0. 088	0. 010
71	5. 92	0. 27	0. 097	(0. 263)	0. 088	0. 010
72	6. 00	0. 27	0. 097	(0. 262)	0. 088	0. 010
73	6. 08	0. 30	0. 110	(0. 261)	0. 099	0. 011
74	6. 17	0. 30	0. 110	(0. 260)	0. 099	0. 011
75	6. 25	0. 30	0. 110	(0. 258)	0. 099	0. 011
76	6. 33	0. 30	0. 110	(0. 257)	0. 099	0. 011
77	6. 42	0. 30	0. 110	(0. 256)	0. 099	0. 011
78	6. 50	0. 30	0. 110	(0. 255)	0. 099	0. 011
79	6. 58	0. 33	0. 122	(0. 254)	0. 110	0. 012
80	6. 67	0. 33	0. 122	(0. 253)	0. 110	0. 012
81	6. 75	0. 33	0. 122	(0. 252)	0. 110	0. 012
82	6. 83	0. 33	0. 122	(0. 250)	0. 110	0. 012
83	6. 92	0. 33	0. 122	(0. 249)	0. 110	0. 012

84	7. 00	0. 33	0. 122	(0. 248)	0. 110	0. 012
85	7. 08	0. 33	0. 122	(0. 247)	0. 110	0. 012
86	7. 17	0. 33	0. 122	(0. 246)	0. 110	0. 012
87	7. 25	0. 33	0. 122	(0. 245)	0. 110	0. 012
88	7. 33	0. 37	0. 134	(0. 244)	0. 121	0. 013
89	7. 42	0. 37	0. 134	(0. 243)	0. 121	0. 013
90	7. 50	0. 37	0. 134	(0. 241)	0. 121	0. 013
91	7. 58	0. 40	0. 146	(0. 240)	0. 132	0. 015
92	7. 67	0. 40	0. 146	(0. 239)	0. 132	0. 015
93	7. 75	0. 40	0. 146	(0. 238)	0. 132	0. 015
94	7. 83	0. 43	0. 158	(0. 237)	0. 143	0. 016
95	7. 92	0. 43	0. 158	(0. 236)	0. 143	0. 016
96	8. 00	0. 43	0. 158	(0. 235)	0. 143	0. 016
97	8. 08	0. 50	0. 183	(0. 234)	0. 164	0. 018
98	8. 17	0. 50	0. 183	(0. 233)	0. 164	0. 018
99	8. 25	0. 50	0. 183	(0. 232)	0. 164	0. 018
100	8. 33	0. 50	0. 183	(0. 230)	0. 164	0. 018
101	8. 42	0. 50	0. 183	(0. 229)	0. 164	0. 018
102	8. 50	0. 50	0. 183	(0. 228)	0. 164	0. 018
103	8. 58	0. 53	0. 195	(0. 227)	0. 175	0. 019
104	8. 67	0. 53	0. 195	(0. 226)	0. 175	0. 019
105	8. 75	0. 53	0. 195	(0. 225)	0. 175	0. 019
106	8. 83	0. 57	0. 207	(0. 224)	0. 186	0. 021
107	8. 92	0. 57	0. 207	(0. 223)	0. 186	0. 021
108	9. 00	0. 57	0. 207	(0. 222)	0. 186	0. 021
109	9. 08	0. 63	0. 231	(0. 221)	0. 208	0. 023
110	9. 17	0. 63	0. 231	(0. 220)	0. 208	0. 023
111	9. 25	0. 63	0. 231	(0. 219)	0. 208	0. 023
112	9. 33	0. 67	0. 244	(0. 218)	(0. 219)	0. 026
113	9. 42	0. 67	0. 244	(0. 217)	(0. 219)	0. 027
114	9. 50	0. 67	0. 244	(0. 216)	(0. 219)	0. 028
115	9. 58	0. 70	0. 256	(0. 215)	(0. 230)	0. 041
116	9. 67	0. 70	0. 256	(0. 214)	(0. 230)	0. 042
117	9. 75	0. 70	0. 256	(0. 213)	(0. 230)	0. 043
118	9. 83	0. 73	0. 268	(0. 212)	(0. 241)	0. 056
119	9. 92	0. 73	0. 268	(0. 211)	(0. 241)	0. 057
120	10. 00	0. 73	0. 268	(0. 210)	(0. 241)	0. 058
121	10. 08	0. 50	0. 183	(0. 208)	0. 164	0. 018
122	10. 17	0. 50	0. 183	(0. 207)	0. 164	0. 018
123	10. 25	0. 50	0. 183	(0. 206)	0. 164	0. 018
124	10. 33	0. 50	0. 183	(0. 205)	0. 164	0. 018
125	10. 42	0. 50	0. 183	(0. 204)	0. 164	0. 018
126	10. 50	0. 50	0. 183	(0. 203)	0. 164	0. 018
127	10. 58	0. 67	0. 244	(0. 202)	(0. 219)	0. 041
128	10. 67	0. 67	0. 244	(0. 201)	(0. 219)	0. 042
129	10. 75	0. 67	0. 244	(0. 201)	(0. 219)	0. 043
130	10. 83	0. 67	0. 244	(0. 200)	(0. 219)	0. 044
131	10. 92	0. 67	0. 244	(0. 199)	(0. 219)	0. 045
132	11. 00	0. 67	0. 244	(0. 198)	(0. 219)	0. 046
133	11. 08	0. 63	0. 231	(0. 197)	(0. 208)	0. 035
134	11. 17	0. 63	0. 231	(0. 196)	(0. 208)	0. 036
135	11. 25	0. 63	0. 231	(0. 195)	(0. 208)	0. 037
136	11. 33	0. 63	0. 231	(0. 194)	(0. 208)	0. 038
137	11. 42	0. 63	0. 231	(0. 193)	(0. 208)	0. 039
138	11. 50	0. 63	0. 231	(0. 192)	(0. 208)	0. 040
139	11. 58	0. 57	0. 207	(0. 191)	0. 186	0. 021
140	11. 67	0. 57	0. 207	(0. 190)	0. 186	0. 021
141	11. 75	0. 57	0. 207	(0. 189)	0. 186	0. 021
142	11. 83	0. 60	0. 219	0. 188	(0. 197)	0. 031
143	11. 92	0. 60	0. 219	0. 187	(0. 197)	0. 032
144	12. 00	0. 60	0. 219	0. 186	(0. 197)	0. 033
145	12. 08	0. 83	0. 304	0. 185	(0. 274)	0. 119
146	12. 17	0. 83	0. 304	0. 184	(0. 274)	0. 120

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147	12. 25	0. 83	0. 304	0. 183	(0. 274)	0. 121
148	12. 33	0. 87	0. 317	0. 182	(0. 285)	0. 134
149	12. 42	0. 87	0. 317	0. 182	(0. 285)	0. 135
150	12. 50	0. 87	0. 317	0. 181	(0. 285)	0. 136
151	12. 58	0. 93	0. 341	0. 180	(0. 307)	0. 161
152	12. 67	0. 93	0. 341	0. 179	(0. 307)	0. 162
153	12. 75	0. 93	0. 341	0. 178	(0. 307)	0. 163
154	12. 83	0. 97	0. 353	0. 177	(0. 318)	0. 176
155	12. 92	0. 97	0. 353	0. 176	(0. 318)	0. 177
156	13. 00	0. 97	0. 353	0. 175	(0. 318)	0. 178
157	13. 08	1. 13	0. 414	0. 174	(0. 373)	0. 240
158	13. 17	1. 13	0. 414	0. 173	(0. 373)	0. 241
159	13. 25	1. 13	0. 414	0. 173	(0. 373)	0. 242
160	13. 33	1. 13	0. 414	0. 172	(0. 373)	0. 242
161	13. 42	1. 13	0. 414	0. 171	(0. 373)	0. 243
162	13. 50	1. 13	0. 414	0. 170	(0. 373)	0. 244
163	13. 58	0. 77	0. 280	0. 169	(0. 252)	0. 111
164	13. 67	0. 77	0. 280	0. 168	(0. 252)	0. 112
165	13. 75	0. 77	0. 280	0. 167	(0. 252)	0. 113
166	13. 83	0. 77	0. 280	0. 166	(0. 252)	0. 114
167	13. 92	0. 77	0. 280	0. 166	(0. 252)	0. 114
168	14. 00	0. 77	0. 280	0. 165	(0. 252)	0. 115
169	14. 08	0. 90	0. 329	0. 164	(0. 296)	0. 165
170	14. 17	0. 90	0. 329	0. 163	(0. 296)	0. 166
171	14. 25	0. 90	0. 329	0. 162	(0. 296)	0. 167
172	14. 33	0. 87	0. 317	0. 161	(0. 285)	0. 155
173	14. 42	0. 87	0. 317	0. 161	(0. 285)	0. 156
174	14. 50	0. 87	0. 317	0. 160	(0. 285)	0. 157
175	14. 58	0. 87	0. 317	0. 159	(0. 285)	0. 158
176	14. 67	0. 87	0. 317	0. 158	(0. 285)	0. 158
177	14. 75	0. 87	0. 317	0. 157	(0. 285)	0. 159
178	14. 83	0. 83	0. 304	0. 157	(0. 274)	0. 148
179	14. 92	0. 83	0. 304	0. 156	(0. 274)	0. 149
180	15. 00	0. 83	0. 304	0. 155	(0. 274)	0. 150
181	15. 08	0. 80	0. 292	0. 154	(0. 263)	0. 138
182	15. 17	0. 80	0. 292	0. 153	(0. 263)	0. 139
183	15. 25	0. 80	0. 292	0. 153	(0. 263)	0. 140
184	15. 33	0. 77	0. 280	0. 152	(0. 252)	0. 128
185	15. 42	0. 77	0. 280	0. 151	(0. 252)	0. 129
186	15. 50	0. 77	0. 280	0. 150	(0. 252)	0. 130
187	15. 58	0. 63	0. 231	0. 149	(0. 208)	0. 082
188	15. 67	0. 63	0. 231	0. 149	(0. 208)	0. 083
189	15. 75	0. 63	0. 231	0. 148	(0. 208)	0. 083
190	15. 83	0. 63	0. 231	0. 147	(0. 208)	0. 084
191	15. 92	0. 63	0. 231	0. 146	(0. 208)	0. 085
192	16. 00	0. 63	0. 231	0. 146	(0. 208)	0. 086
193	16. 08	0. 13	0. 049	(0. 145)	0. 044	0. 005
194	16. 17	0. 13	0. 049	(0. 144)	0. 044	0. 005
195	16. 25	0. 13	0. 049	(0. 143)	0. 044	0. 005
196	16. 33	0. 13	0. 049	(0. 143)	0. 044	0. 005
197	16. 42	0. 13	0. 049	(0. 142)	0. 044	0. 005
198	16. 50	0. 13	0. 049	(0. 141)	0. 044	0. 005
199	16. 58	0. 10	0. 037	(0. 141)	0. 033	0. 004
200	16. 67	0. 10	0. 037	(0. 140)	0. 033	0. 004
201	16. 75	0. 10	0. 037	(0. 139)	0. 033	0. 004
202	16. 83	0. 10	0. 037	(0. 138)	0. 033	0. 004
203	16. 92	0. 10	0. 037	(0. 138)	0. 033	0. 004
204	17. 00	0. 10	0. 037	(0. 137)	0. 033	0. 004
205	17. 08	0. 17	0. 061	(0. 136)	0. 055	0. 006
206	17. 17	0. 17	0. 061	(0. 136)	0. 055	0. 006
207	17. 25	0. 17	0. 061	(0. 135)	0. 055	0. 006
208	17. 33	0. 17	0. 061	(0. 134)	0. 055	0. 006
209	17. 42	0. 17	0. 061	(0. 134)	0. 055	0. 006

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210	17. 50	0. 17	0. 061	(0. 133)	0. 055	0. 006	
211	17. 58	0. 17	0. 061	(0. 132)	0. 055	0. 006	
212	17. 67	0. 17	0. 061	(0. 132)	0. 055	0. 006	
213	17. 75	0. 17	0. 061	(0. 131)	0. 055	0. 006	
214	17. 83	0. 13	0. 049	(0. 130)	0. 044	0. 005	
215	17. 92	0. 13	0. 049	(0. 130)	0. 044	0. 005	
216	18. 00	0. 13	0. 049	(0. 129)	0. 044	0. 005	
217	18. 08	0. 13	0. 049	(0. 128)	0. 044	0. 005	
218	18. 17	0. 13	0. 049	(0. 128)	0. 044	0. 005	
219	18. 25	0. 13	0. 049	(0. 127)	0. 044	0. 005	
220	18. 33	0. 13	0. 049	(0. 127)	0. 044	0. 005	
221	18. 42	0. 13	0. 049	(0. 126)	0. 044	0. 005	
222	18. 50	0. 13	0. 049	(0. 125)	0. 044	0. 005	
223	18. 58	0. 10	0. 037	(0. 125)	0. 033	0. 004	
224	18. 67	0. 10	0. 037	(0. 124)	0. 033	0. 004	
225	18. 75	0. 10	0. 037	(0. 124)	0. 033	0. 004	
226	18. 83	0. 07	0. 024	(0. 123)	0. 022	0. 002	
227	18. 92	0. 07	0. 024	(0. 122)	0. 022	0. 002	
228	19. 00	0. 07	0. 024	(0. 122)	0. 022	0. 002	
229	19. 08	0. 10	0. 037	(0. 121)	0. 033	0. 004	
230	19. 17	0. 10	0. 037	(0. 121)	0. 033	0. 004	
231	19. 25	0. 10	0. 037	(0. 120)	0. 033	0. 004	
232	19. 33	0. 13	0. 049	(0. 119)	0. 044	0. 005	
233	19. 42	0. 13	0. 049	(0. 119)	0. 044	0. 005	
234	19. 50	0. 13	0. 049	(0. 118)	0. 044	0. 005	
235	19. 58	0. 10	0. 037	(0. 118)	0. 033	0. 004	
236	19. 67	0. 10	0. 037	(0. 117)	0. 033	0. 004	
237	19. 75	0. 10	0. 037	(0. 117)	0. 033	0. 004	
238	19. 83	0. 07	0. 024	(0. 116)	0. 022	0. 002	
239	19. 92	0. 07	0. 024	(0. 116)	0. 022	0. 002	
240	20. 00	0. 07	0. 024	(0. 115)	0. 022	0. 002	
241	20. 08	0. 10	0. 037	(0. 115)	0. 033	0. 004	
242	20. 17	0. 10	0. 037	(0. 114)	0. 033	0. 004	
243	20. 25	0. 10	0. 037	(0. 114)	0. 033	0. 004	
244	20. 33	0. 10	0. 037	(0. 113)	0. 033	0. 004	
245	20. 42	0. 10	0. 037	(0. 113)	0. 033	0. 004	
246	20. 50	0. 10	0. 037	(0. 112)	0. 033	0. 004	
247	20. 58	0. 10	0. 037	(0. 112)	0. 033	0. 004	
248	20. 67	0. 10	0. 037	(0. 111)	0. 033	0. 004	
249	20. 75	0. 10	0. 037	(0. 111)	0. 033	0. 004	
250	20. 83	0. 07	0. 024	(0. 110)	0. 022	0. 002	
251	20. 92	0. 07	0. 024	(0. 110)	0. 022	0. 002	
252	21. 00	0. 07	0. 024	(0. 110)	0. 022	0. 002	
253	21. 08	0. 10	0. 037	(0. 109)	0. 033	0. 004	
254	21. 17	0. 10	0. 037	(0. 109)	0. 033	0. 004	
255	21. 25	0. 10	0. 037	(0. 108)	0. 033	0. 004	
256	21. 33	0. 07	0. 024	(0. 108)	0. 022	0. 002	
257	21. 42	0. 07	0. 024	(0. 107)	0. 022	0. 002	
258	21. 50	0. 07	0. 024	(0. 107)	0. 022	0. 002	
259	21. 58	0. 10	0. 037	(0. 107)	0. 033	0. 004	
260	21. 67	0. 10	0. 037	(0. 106)	0. 033	0. 004	
261	21. 75	0. 10	0. 037	(0. 106)	0. 033	0. 004	
262	21. 83	0. 07	0. 024	(0. 105)	0. 022	0. 002	
263	21. 92	0. 07	0. 024	(0. 105)	0. 022	0. 002	
264	22. 00	0. 07	0. 024	(0. 105)	0. 022	0. 002	
265	22. 08	0. 10	0. 037	(0. 104)	0. 033	0. 004	
266	22. 17	0. 10	0. 037	(0. 104)	0. 033	0. 004	
267	22. 25	0. 10	0. 037	(0. 104)	0. 033	0. 004	
268	22. 33	0. 07	0. 024	(0. 103)	0. 022	0. 002	
269	22. 42	0. 07	0. 024	(0. 103)	0. 022	0. 002	
270	22. 50	0. 07	0. 024	(0. 103)	0. 022	0. 002	
271	22. 58	0. 07	0. 024	(0. 102)	0. 022	0. 002	
272	22. 67	0. 07	0. 024	(0. 102)	0. 022	0. 002	

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273	22.75	0.07	0.024	(0.102)	0.022	0.002
274	22.83	0.07	0.024	(0.102)	0.022	0.002
275	22.92	0.07	0.024	(0.101)	0.022	0.002
276	23.00	0.07	0.024	(0.101)	0.022	0.002
277	23.08	0.07	0.024	(0.101)	0.022	0.002
278	23.17	0.07	0.024	(0.101)	0.022	0.002
279	23.25	0.07	0.024	(0.100)	0.022	0.002
280	23.33	0.07	0.024	(0.100)	0.022	0.002
281	23.42	0.07	0.024	(0.100)	0.022	0.002
282	23.50	0.07	0.024	(0.100)	0.022	0.002
283	23.58	0.07	0.024	(0.100)	0.022	0.002
284	23.67	0.07	0.024	(0.100)	0.022	0.002
285	23.75	0.07	0.024	(0.099)	0.022	0.002
286	23.83	0.07	0.024	(0.099)	0.022	0.002
287	23.92	0.07	0.024	(0.099)	0.022	0.002
288	24.00	0.07	0.024	(0.099)	0.022	0.002

Sum = 100.0 (Loss Rate Not Used) Sum = 9.6

Flood volume = Effective rainfall times area = $5.5(\text{Ac.}) / [(\text{In}) / (\text{Ft.})] = 0.80(\text{In}) = 0.4(\text{Ac. Ft})$
 Total soil loss = 2.24(In)
 Total soil loss = 1.033(Ac. Ft)
 Total rainfall = 3.04(In)
 Flood volume = 16127.9 Cubic Feet
 Total soil loss = 44994.8 Cubic Feet

 Peak flow rate of this hydrograph = 1.357(CFS)

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 24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac. Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.02	Q				
0+25	0.0004	0.02	Q				
0+30	0.0006	0.02	Q				
0+35	0.0007	0.02	Q				
0+40	0.0009	0.02	Q				
0+45	0.0010	0.02	Q				
0+50	0.0012	0.02	Q				
0+55	0.0013	0.03	Q				
1+ 0	0.0015	0.03	Q				
1+ 5	0.0017	0.02	Q				
1+10	0.0018	0.02	Q				
1+15	0.0020	0.02	Q				
1+20	0.0021	0.02	Q				
1+25	0.0023	0.02	Q				
1+30	0.0024	0.02	Q				
1+35	0.0025	0.02	Q				
1+40	0.0027	0.02	Q				
1+45	0.0028	0.02	Q				
1+50	0.0030	0.02	Q				
1+55	0.0032	0.03	Q				
2+ 0	0.0034	0.03	Q				
2+ 5	0.0035	0.03	Q				
2+10	0.0037	0.03	Q				

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2+15	0.0039	0.03	Q
2+20	0.0041	0.03	Q
2+25	0.0043	0.03	Q
2+30	0.0045	0.03	Q
2+35	0.0047	0.03	Q
2+40	0.0049	0.03	Q
2+45	0.0051	0.03	Q
2+50	0.0054	0.03	Q
2+55	0.0056	0.03	Q
3+ 0	0.0058	0.03	Q
3+ 5	0.0061	0.03	Q
3+10	0.0063	0.03	Q
3+15	0.0065	0.03	Q
3+20	0.0068	0.03	Q
3+25	0.0070	0.03	Q
3+30	0.0072	0.03	Q
3+35	0.0075	0.03	Q
3+40	0.0077	0.03	Q
3+45	0.0079	0.03	Q
3+50	0.0082	0.04	Q
3+55	0.0085	0.04	Q
4+ 0	0.0087	0.04	Q
4+ 5	0.0090	0.04	Q
4+10	0.0093	0.04	QV
4+15	0.0096	0.04	QV
4+20	0.0099	0.04	QV
4+25	0.0102	0.05	QV
4+30	0.0105	0.05	QV
4+35	0.0109	0.05	QV
4+40	0.0112	0.05	QV
4+45	0.0115	0.05	QV
4+50	0.0119	0.05	QV
4+55	0.0122	0.05	QV
5+ 0	0.0126	0.05	QV
5+ 5	0.0129	0.05	QV
5+10	0.0132	0.04	QV
5+15	0.0135	0.04	QV
5+20	0.0138	0.04	QV
5+25	0.0141	0.05	QV
5+30	0.0145	0.05	QV
5+35	0.0148	0.05	QV
5+40	0.0152	0.05	QV
5+45	0.0155	0.05	QV
5+50	0.0159	0.05	QV
5+55	0.0163	0.05	QV
6+ 0	0.0167	0.05	QV
6+ 5	0.0171	0.06	QV
6+10	0.0175	0.06	QV
6+15	0.0179	0.06	QV
6+20	0.0183	0.06	QV
6+25	0.0187	0.06	Q V
6+30	0.0191	0.06	Q V
6+35	0.0196	0.06	Q V
6+40	0.0200	0.07	Q V
6+45	0.0205	0.07	Q V
6+50	0.0210	0.07	Q V
6+55	0.0214	0.07	Q V
7+ 0	0.0219	0.07	Q V
7+ 5	0.0224	0.07	Q V
7+10	0.0229	0.07	Q V
7+15	0.0233	0.07	Q V
7+20	0.0238	0.07	Q V
7+25	0.0243	0.07	Q V

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7+30	0. 0248	0. 07	Q V
7+35	0. 0254	0. 08	Q V
7+40	0. 0259	0. 08	Q V
7+45	0. 0265	0. 08	Q V
7+50	0. 0270	0. 08	Q V
7+55	0. 0276	0. 09	Q V
8+ 0	0. 0283	0. 09	Q V
8+ 5	0. 0289	0. 09	Q V
8+10	0. 0296	0. 10	Q V
8+15	0. 0303	0. 10	Q V
8+20	0. 0310	0. 10	Q V
8+25	0. 0317	0. 10	Q V
8+30	0. 0324	0. 10	Q V
8+35	0. 0331	0. 10	Q V
8+40	0. 0338	0. 11	Q V
8+45	0. 0346	0. 11	Q V
8+50	0. 0354	0. 11	Q V
8+55	0. 0361	0. 11	Q V
9+ 0	0. 0369	0. 12	Q V
9+ 5	0. 0378	0. 12	Q V
9+10	0. 0386	0. 13	Q V
9+15	0. 0395	0. 13	Q V
9+20	0. 0404	0. 13	Q V
9+25	0. 0414	0. 14	Q V
9+30	0. 0425	0. 15	Q V
9+35	0. 0437	0. 18	Q V
9+40	0. 0452	0. 22	Q V
9+45	0. 0468	0. 23	Q V
9+50	0. 0487	0. 26	Q V
9+55	0. 0508	0. 31	Q V
10+ 0	0. 0530	0. 32	Q V
10+ 5	0. 0547	0. 25	Q V
10+10	0. 0556	0. 13	Q V
10+15	0. 0563	0. 11	Q V
10+20	0. 0571	0. 10	Q V
10+25	0. 0578	0. 10	Q V
10+30	0. 0585	0. 10	Q V
10+35	0. 0595	0. 14	Q V
10+40	0. 0609	0. 21	Q V
10+45	0. 0625	0. 23	Q V
10+50	0. 0642	0. 24	Q V
10+55	0. 0659	0. 25	Q V
11+ 0	0. 0676	0. 25	Q V
11+ 5	0. 0692	0. 24	Q V
11+10	0. 0706	0. 20	Q V
11+15	0. 0720	0. 20	Q V
11+20	0. 0734	0. 21	Q V
11+25	0. 0749	0. 21	Q V
11+30	0. 0764	0. 22	Q V
11+35	0. 0777	0. 19	Q V
11+40	0. 0786	0. 13	Q V
11+45	0. 0794	0. 12	Q V
11+50	0. 0803	0. 14	Q V
11+55	0. 0815	0. 17	Q V
12+ 0	0. 0827	0. 18	Q V
12+ 5	0. 0850	0. 34	Q V
12+10	0. 0892	0. 60	Q V
12+15	0. 0937	0. 66	Q V
12+20	0. 0985	0. 70	Q V
12+25	0. 1036	0. 74	Q V
12+30	0. 1088	0. 75	Q V
12+35	0. 1143	0. 80	Q V
12+40	0. 1204	0. 88	Q V

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12+45	0. 1266	0. 90	Q
12+50	0. 1330	0. 93	Q
12+55	0. 1397	0. 97	Q
13+ 0	0. 1465	0. 99	Q
13+ 5	0. 1541	1. 10	Q
13+10	0. 1630	1. 29	Q
13+15	0. 1722	1. 33	Q
13+20	0. 1815	1. 35	Q
13+25	0. 1908	1. 35	Q
13+30	0. 2001	1. 36	Q
13+35	0. 2078	1. 12	Q
13+40	0. 2128	0. 72	Q
13+45	0. 2172	0. 64	Q
13+50	0. 2216	0. 63	Q
13+55	0. 2260	0. 63	Q
14+ 0	0. 2304	0. 64	Q
14+ 5	0. 2354	0. 73	Q
14+10	0. 2415	0. 88	Q
14+15	0. 2478	0. 92	Q
14+20	0. 2541	0. 91	Q
14+25	0. 2601	0. 88	Q
14+30	0. 2661	0. 87	Q
14+35	0. 2721	0. 88	Q
14+40	0. 2782	0. 88	Q
14+45	0. 2843	0. 88	Q
14+50	0. 2903	0. 87	Q
14+55	0. 2960	0. 83	Q
15+ 0	0. 3017	0. 83	Q
15+ 5	0. 3073	0. 81	Q
15+10	0. 3127	0. 78	Q
15+15	0. 3181	0. 78	Q
15+20	0. 3233	0. 76	Q
15+25	0. 3283	0. 73	Q
15+30	0. 3333	0. 72	Q
15+35	0. 3376	0. 64	Q
15+40	0. 3410	0. 49	Q
15+45	0. 3443	0. 47	Q
15+50	0. 3475	0. 47	Q
15+55	0. 3507	0. 47	Q
16+ 0	0. 3540	0. 47	Q
16+ 5	0. 3563	0. 33	Q
16+10	0. 3569	0. 09	Q
16+15	0. 3572	0. 04	Q
16+20	0. 3574	0. 03	Q
16+25	0. 3576	0. 03	Q
16+30	0. 3577	0. 03	Q
16+35	0. 3579	0. 02	Q
16+40	0. 3581	0. 02	Q
16+45	0. 3582	0. 02	Q
16+50	0. 3583	0. 02	Q
16+55	0. 3585	0. 02	Q
17+ 0	0. 3586	0. 02	Q
17+ 5	0. 3588	0. 02	Q
17+10	0. 3590	0. 03	Q
17+15	0. 3592	0. 03	Q
17+20	0. 3595	0. 03	Q
17+25	0. 3597	0. 03	Q
17+30	0. 3599	0. 03	Q
17+35	0. 3602	0. 03	Q
17+40	0. 3604	0. 03	Q
17+45	0. 3606	0. 03	Q
17+50	0. 3609	0. 03	Q
17+55	0. 3611	0. 03	Q

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18+ 0	0. 3612	0. 03	Q			V
18+ 5	0. 3614	0. 03	Q			V
18+10	0. 3616	0. 03	Q			V
18+15	0. 3618	0. 03	Q			V
18+20	0. 3620	0. 03	Q			V
18+25	0. 3622	0. 03	Q			V
18+30	0. 3624	0. 03	Q			V
18+35	0. 3625	0. 02	Q			V
18+40	0. 3627	0. 02	Q			V
18+45	0. 3628	0. 02	Q			V
18+50	0. 3630	0. 02	Q			V
18+55	0. 3631	0. 01	Q			V
19+ 0	0. 3632	0. 01	Q			V
19+ 5	0. 3633	0. 02	Q			V
19+10	0. 3634	0. 02	Q			V
19+15	0. 3635	0. 02	Q			V
19+20	0. 3637	0. 02	Q			V
19+25	0. 3639	0. 03	Q			V
19+30	0. 3641	0. 03	Q			V
19+35	0. 3642	0. 02	Q			V
19+40	0. 3644	0. 02	Q			V
19+45	0. 3645	0. 02	Q			V
19+50	0. 3646	0. 02	Q			V
19+55	0. 3647	0. 01	Q			V
20+ 0	0. 3648	0. 01	Q			V
20+ 5	0. 3649	0. 02	Q			V
20+10	0. 3651	0. 02	Q			V
20+15	0. 3652	0. 02	Q			V
20+20	0. 3654	0. 02	Q			V
20+25	0. 3655	0. 02	Q			V
20+30	0. 3656	0. 02	Q			V
20+35	0. 3658	0. 02	Q			V
20+40	0. 3659	0. 02	Q			V
20+45	0. 3661	0. 02	Q			V
20+50	0. 3662	0. 02	Q			V
20+55	0. 3663	0. 01	Q			V
21+ 0	0. 3664	0. 01	Q			V
21+ 5	0. 3665	0. 02	Q			V
21+10	0. 3666	0. 02	Q			V
21+15	0. 3668	0. 02	Q			V
21+20	0. 3669	0. 02	Q			V
21+25	0. 3670	0. 01	Q			V
21+30	0. 3671	0. 01	Q			V
21+35	0. 3672	0. 02	Q			V
21+40	0. 3673	0. 02	Q			V
21+45	0. 3675	0. 02	Q			V
21+50	0. 3676	0. 02	Q			V
21+55	0. 3677	0. 01	Q			V
22+ 0	0. 3678	0. 01	Q			V
22+ 5	0. 3679	0. 02	Q			V
22+10	0. 3680	0. 02	Q			V
22+15	0. 3682	0. 02	Q			V
22+20	0. 3683	0. 02	Q			V
22+25	0. 3684	0. 01	Q			V
22+30	0. 3685	0. 01	Q			V
22+35	0. 3686	0. 01	Q			V
22+40	0. 3687	0. 01	Q			V
22+45	0. 3688	0. 01	Q			V
22+50	0. 3689	0. 01	Q			V
22+55	0. 3690	0. 01	Q			V
23+ 0	0. 3690	0. 01	Q			V
23+ 5	0. 3691	0. 01	Q			V
23+10	0. 3692	0. 01	Q			V

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23+15	0. 3693	0. 01	Q					V
23+20	0. 3694	0. 01	Q					V
23+25	0. 3695	0. 01	Q					V
23+30	0. 3696	0. 01	Q					V
23+35	0. 3697	0. 01	Q					V
23+40	0. 3698	0. 01	Q					V
23+45	0. 3699	0. 01	Q					V
23+50	0. 3700	0. 01	Q					V
23+55	0. 3701	0. 01	Q					V
24+ 0	0. 3702	0. 01	Q					V
24+ 5	0. 3702	0. 01	Q					V
24+10	0. 3702	0. 00	Q					V
24+15	0. 3702	0. 00	Q					V
24+20	0. 3702	0. 00	Q					V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33prea24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff
Area A

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Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
0.009 Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
Length along longest watercourse = 0.161 Mi.
Mi. Length along longest watercourse measured to centroid = 0.065

Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.037	(0.152)	0.033	0.004
2	0.17	0.07	0.037	(0.152)	0.033	0.004
3	0.25	0.07	0.037	(0.151)	0.033	0.004
4	0.33	0.10	0.056	(0.150)	0.050	0.006
5	0.42	0.10	0.056	(0.150)	0.050	0.006
6	0.50	0.10	0.056	(0.149)	0.050	0.006
7	0.58	0.10	0.056	(0.149)	0.050	0.006
8	0.67	0.10	0.056	(0.148)	0.050	0.006
9	0.75	0.10	0.056	(0.147)	0.050	0.006
10	0.83	0.13	0.074	(0.147)	0.067	0.007
11	0.92	0.13	0.074	(0.146)	0.067	0.007
12	1.00	0.13	0.074	(0.146)	0.067	0.007
13	1.08	0.10	0.056	(0.145)	0.050	0.006
14	1.17	0.10	0.056	(0.145)	0.050	0.006
15	1.25	0.10	0.056	(0.144)	0.050	0.006
16	1.33	0.10	0.056	(0.143)	0.050	0.006
17	1.42	0.10	0.056	(0.143)	0.050	0.006
18	1.50	0.10	0.056	(0.142)	0.050	0.006
19	1.58	0.10	0.056	(0.142)	0.050	0.006
20	1.67	0.10	0.056	(0.141)	0.050	0.006
21	1.75	0.10	0.056	(0.141)	0.050	0.006
22	1.83	0.13	0.074	(0.140)	0.067	0.007
23	1.92	0.13	0.074	(0.139)	0.067	0.007
24	2.00	0.13	0.074	(0.139)	0.067	0.007
25	2.08	0.13	0.074	(0.138)	0.067	0.007
26	2.17	0.13	0.074	(0.138)	0.067	0.007
27	2.25	0.13	0.074	(0.137)	0.067	0.007
28	2.33	0.13	0.074	(0.137)	0.067	0.007
29	2.42	0.13	0.074	(0.136)	0.067	0.007
30	2.50	0.13	0.074	(0.136)	0.067	0.007
31	2.58	0.17	0.093	(0.135)	0.084	0.009
32	2.67	0.17	0.093	(0.134)	0.084	0.009
33	2.75	0.17	0.093	(0.134)	0.084	0.009
34	2.83	0.17	0.093	(0.133)	0.084	0.009
35	2.92	0.17	0.093	(0.133)	0.084	0.009
36	3.00	0.17	0.093	(0.132)	0.084	0.009
37	3.08	0.17	0.093	(0.132)	0.084	0.009
38	3.17	0.17	0.093	(0.131)	0.084	0.009
39	3.25	0.17	0.093	(0.131)	0.084	0.009
40	3.33	0.17	0.093	(0.130)	0.084	0.009
41	3.42	0.17	0.093	(0.129)	0.084	0.009
42	3.50	0.17	0.093	(0.129)	0.084	0.009
43	3.58	0.17	0.093	(0.128)	0.084	0.009
44	3.67	0.17	0.093	(0.128)	0.084	0.009
45	3.75	0.17	0.093	(0.127)	0.084	0.009
46	3.83	0.20	0.111	(0.127)	0.100	0.011
47	3.92	0.20	0.111	(0.126)	0.100	0.011
48	4.00	0.20	0.111	(0.126)	0.100	0.011
49	4.08	0.20	0.111	(0.125)	0.100	0.011
50	4.17	0.20	0.111	(0.125)	0.100	0.011
51	4.25	0.20	0.111	(0.124)	0.100	0.011
52	4.33	0.23	0.130	(0.124)	0.117	0.013
53	4.42	0.23	0.130	(0.123)	0.117	0.013
54	4.50	0.23	0.130	(0.123)	0.117	0.013
55	4.58	0.23	0.130	(0.122)	0.117	0.013
56	4.67	0.23	0.130	(0.121)	0.117	0.013
57	4.75	0.23	0.130	(0.121)	0.117	0.013

58	4.83	0.27	0.148		0.120	(0.134)	0.028
59	4.92	0.27	0.148		0.120	(0.134)	0.029
60	5.00	0.27	0.148		0.119	(0.134)	0.029
61	5.08	0.20	0.111	(0.119)		0.100	0.011
62	5.17	0.20	0.111	(0.118)		0.100	0.011
63	5.25	0.20	0.111	(0.118)		0.100	0.011
64	5.33	0.23	0.130	(0.117)		0.117	0.013
65	5.42	0.23	0.130		0.117	(0.117)	0.013
66	5.50	0.23	0.130		0.116	(0.117)	0.014
67	5.58	0.27	0.148		0.116	(0.134)	0.033
68	5.67	0.27	0.148		0.115	(0.134)	0.033
69	5.75	0.27	0.148		0.115	(0.134)	0.034
70	5.83	0.27	0.148		0.114	(0.134)	0.034
71	5.92	0.27	0.148		0.114	(0.134)	0.035
72	6.00	0.27	0.148		0.113	(0.134)	0.035
73	6.08	0.30	0.167		0.113	(0.150)	0.054
74	6.17	0.30	0.167		0.112	(0.150)	0.055
75	6.25	0.30	0.167		0.112	(0.150)	0.055
76	6.33	0.30	0.167		0.111	(0.150)	0.056
77	6.42	0.30	0.167		0.111	(0.150)	0.056
78	6.50	0.30	0.167		0.110	(0.150)	0.057
79	6.58	0.33	0.186		0.110	(0.167)	0.076
80	6.67	0.33	0.186		0.109	(0.167)	0.076
81	6.75	0.33	0.186		0.109	(0.167)	0.077
82	6.83	0.33	0.186		0.108	(0.167)	0.077
83	6.92	0.33	0.186		0.108	(0.167)	0.078
84	7.00	0.33	0.186		0.107	(0.167)	0.078
85	7.08	0.33	0.186		0.107	(0.167)	0.079
86	7.17	0.33	0.186		0.106	(0.167)	0.079
87	7.25	0.33	0.186		0.106	(0.167)	0.080
88	7.33	0.37	0.204		0.105	(0.184)	0.099
89	7.42	0.37	0.204		0.105	(0.184)	0.099
90	7.50	0.37	0.204		0.104	(0.184)	0.100
91	7.58	0.40	0.223		0.104	(0.200)	0.119
92	7.67	0.40	0.223		0.103	(0.200)	0.119
93	7.75	0.40	0.223		0.103	(0.200)	0.120
94	7.83	0.43	0.241		0.102	(0.217)	0.139
95	7.92	0.43	0.241		0.102	(0.217)	0.139
96	8.00	0.43	0.241		0.102	(0.217)	0.140
97	8.08	0.50	0.278		0.101	(0.251)	0.177
98	8.17	0.50	0.278		0.101	(0.251)	0.178
99	8.25	0.50	0.278		0.100	(0.251)	0.178
100	8.33	0.50	0.278		0.100	(0.251)	0.179
101	8.42	0.50	0.278		0.099	(0.251)	0.179
102	8.50	0.50	0.278		0.099	(0.251)	0.180
103	8.58	0.53	0.297		0.098	(0.267)	0.199
104	8.67	0.53	0.297		0.098	(0.267)	0.199
105	8.75	0.53	0.297		0.097	(0.267)	0.200
106	8.83	0.57	0.316		0.097	(0.284)	0.219
107	8.92	0.57	0.316		0.096	(0.284)	0.219
108	9.00	0.57	0.316		0.096	(0.284)	0.220
109	9.08	0.63	0.353		0.096	(0.317)	0.257
110	9.17	0.63	0.353		0.095	(0.317)	0.258
111	9.25	0.63	0.353		0.095	(0.317)	0.258
112	9.33	0.67	0.371		0.094	(0.334)	0.277
113	9.42	0.67	0.371		0.094	(0.334)	0.277
114	9.50	0.67	0.371		0.093	(0.334)	0.278
115	9.58	0.70	0.390		0.093	(0.351)	0.297
116	9.67	0.70	0.390		0.092	(0.351)	0.297
117	9.75	0.70	0.390		0.092	(0.351)	0.298

118	9.83	0.73	0.408	0.091	(0.367)	0.317
119	9.92	0.73	0.408	0.091	(0.367)	0.317
120	10.00	0.73	0.408	0.091	(0.367)	0.318
121	10.08	0.50	0.278	0.090	(0.251)	0.188
122	10.17	0.50	0.278	0.090	(0.251)	0.189
123	10.25	0.50	0.278	0.089	(0.251)	0.189
124	10.33	0.50	0.278	0.089	(0.251)	0.190
125	10.42	0.50	0.278	0.088	(0.251)	0.190
126	10.50	0.50	0.278	0.088	(0.251)	0.190
127	10.58	0.67	0.371	0.088	(0.334)	0.284
128	10.67	0.67	0.371	0.087	(0.334)	0.284
129	10.75	0.67	0.371	0.087	(0.334)	0.284
130	10.83	0.67	0.371	0.086	(0.334)	0.285
131	10.92	0.67	0.371	0.086	(0.334)	0.285
132	11.00	0.67	0.371	0.085	(0.334)	0.286
133	11.08	0.63	0.353	0.085	(0.317)	0.268
134	11.17	0.63	0.353	0.085	(0.317)	0.268
135	11.25	0.63	0.353	0.084	(0.317)	0.268
136	11.33	0.63	0.353	0.084	(0.317)	0.269
137	11.42	0.63	0.353	0.083	(0.317)	0.269
138	11.50	0.63	0.353	0.083	(0.317)	0.270
139	11.58	0.57	0.316	0.083	(0.284)	0.233
140	11.67	0.57	0.316	0.082	(0.284)	0.233
141	11.75	0.57	0.316	0.082	(0.284)	0.234
142	11.83	0.60	0.334	0.081	(0.301)	0.253
143	11.92	0.60	0.334	0.081	(0.301)	0.253
144	12.00	0.60	0.334	0.080	(0.301)	0.254
145	12.08	0.83	0.464	0.080	(0.418)	0.384
146	12.17	0.83	0.464	0.080	(0.418)	0.384
147	12.25	0.83	0.464	0.079	(0.418)	0.385
148	12.33	0.87	0.483	0.079	(0.434)	0.404
149	12.42	0.87	0.483	0.078	(0.434)	0.404
150	12.50	0.87	0.483	0.078	(0.434)	0.404
151	12.58	0.93	0.520	0.078	(0.468)	0.442
152	12.67	0.93	0.520	0.077	(0.468)	0.442
153	12.75	0.93	0.520	0.077	(0.468)	0.443
154	12.83	0.97	0.538	0.077	(0.484)	0.462
155	12.92	0.97	0.538	0.076	(0.484)	0.462
156	13.00	0.97	0.538	0.076	(0.484)	0.462
157	13.08	1.13	0.631	0.075	(0.568)	0.556
158	13.17	1.13	0.631	0.075	(0.568)	0.556
159	13.25	1.13	0.631	0.075	(0.568)	0.556
160	13.33	1.13	0.631	0.074	(0.568)	0.557
161	13.42	1.13	0.631	0.074	(0.568)	0.557
162	13.50	1.13	0.631	0.073	(0.568)	0.558
163	13.58	0.77	0.427	0.073	(0.384)	0.354
164	13.67	0.77	0.427	0.073	(0.384)	0.354
165	13.75	0.77	0.427	0.072	(0.384)	0.355
166	13.83	0.77	0.427	0.072	(0.384)	0.355
167	13.92	0.77	0.427	0.072	(0.384)	0.355
168	14.00	0.77	0.427	0.071	(0.384)	0.356
169	14.08	0.90	0.501	0.071	(0.451)	0.430
170	14.17	0.90	0.501	0.071	(0.451)	0.431
171	14.25	0.90	0.501	0.070	(0.451)	0.431
172	14.33	0.87	0.483	0.070	(0.434)	0.413
173	14.42	0.87	0.483	0.069	(0.434)	0.413
174	14.50	0.87	0.483	0.069	(0.434)	0.413
175	14.58	0.87	0.483	0.069	(0.434)	0.414
176	14.67	0.87	0.483	0.068	(0.434)	0.414
177	14.75	0.87	0.483	0.068	(0.434)	0.415

178	14.83	0.83	0.464	0.068	(0.418)	0.396
179	14.92	0.83	0.464	0.067	(0.418)	0.397
180	15.00	0.83	0.464	0.067	(0.418)	0.397
181	15.08	0.80	0.445	0.067	(0.401)	0.379
182	15.17	0.80	0.445	0.066	(0.401)	0.379
183	15.25	0.80	0.445	0.066	(0.401)	0.379
184	15.33	0.77	0.427	0.066	(0.384)	0.361
185	15.42	0.77	0.427	0.065	(0.384)	0.362
186	15.50	0.77	0.427	0.065	(0.384)	0.362
187	15.58	0.63	0.353	0.065	(0.317)	0.288
188	15.67	0.63	0.353	0.064	(0.317)	0.288
189	15.75	0.63	0.353	0.064	(0.317)	0.289
190	15.83	0.63	0.353	0.064	(0.317)	0.289
191	15.92	0.63	0.353	0.063	(0.317)	0.289
192	16.00	0.63	0.353	0.063	(0.317)	0.290
193	16.08	0.13	0.074	0.063	(0.067)	0.012
194	16.17	0.13	0.074	0.062	(0.067)	0.012
195	16.25	0.13	0.074	0.062	(0.067)	0.012
196	16.33	0.13	0.074	0.062	(0.067)	0.013
197	16.42	0.13	0.074	0.061	(0.067)	0.013
198	16.50	0.13	0.074	0.061	(0.067)	0.013
199	16.58	0.10	0.056	(0.061)	0.050	0.006
200	16.67	0.10	0.056	(0.060)	0.050	0.006
201	16.75	0.10	0.056	(0.060)	0.050	0.006
202	16.83	0.10	0.056	(0.060)	0.050	0.006
203	16.92	0.10	0.056	(0.060)	0.050	0.006
204	17.00	0.10	0.056	(0.059)	0.050	0.006
205	17.08	0.17	0.093	0.059	(0.084)	0.034
206	17.17	0.17	0.093	0.059	(0.084)	0.034
207	17.25	0.17	0.093	0.058	(0.084)	0.034
208	17.33	0.17	0.093	0.058	(0.084)	0.035
209	17.42	0.17	0.093	0.058	(0.084)	0.035
210	17.50	0.17	0.093	0.058	(0.084)	0.035
211	17.58	0.17	0.093	0.057	(0.084)	0.036
212	17.67	0.17	0.093	0.057	(0.084)	0.036
213	17.75	0.17	0.093	0.057	(0.084)	0.036
214	17.83	0.13	0.074	0.056	(0.067)	0.018
215	17.92	0.13	0.074	0.056	(0.067)	0.018
216	18.00	0.13	0.074	0.056	(0.067)	0.018
217	18.08	0.13	0.074	0.056	(0.067)	0.019
218	18.17	0.13	0.074	0.055	(0.067)	0.019
219	18.25	0.13	0.074	0.055	(0.067)	0.019
220	18.33	0.13	0.074	0.055	(0.067)	0.020
221	18.42	0.13	0.074	0.054	(0.067)	0.020
222	18.50	0.13	0.074	0.054	(0.067)	0.020
223	18.58	0.10	0.056	(0.054)	0.050	0.006
224	18.67	0.10	0.056	(0.054)	0.050	0.006
225	18.75	0.10	0.056	(0.053)	0.050	0.006
226	18.83	0.07	0.037	(0.053)	0.033	0.004
227	18.92	0.07	0.037	(0.053)	0.033	0.004
228	19.00	0.07	0.037	(0.053)	0.033	0.004
229	19.08	0.10	0.056	(0.052)	0.050	0.006
230	19.17	0.10	0.056	(0.052)	0.050	0.006
231	19.25	0.10	0.056	(0.052)	0.050	0.006
232	19.33	0.13	0.074	0.052	(0.067)	0.023
233	19.42	0.13	0.074	0.051	(0.067)	0.023
234	19.50	0.13	0.074	0.051	(0.067)	0.023
235	19.58	0.10	0.056	(0.051)	0.050	0.006
236	19.67	0.10	0.056	(0.051)	0.050	0.006
237	19.75	0.10	0.056	(0.050)	0.050	0.006

238	19.83	0.07	0.037	(0.050)	0.033	0.004
239	19.92	0.07	0.037	(0.050)	0.033	0.004
240	20.00	0.07	0.037	(0.050)	0.033	0.004
241	20.08	0.10	0.056	0.050	(0.050)	0.006
242	20.17	0.10	0.056	0.049	(0.050)	0.006
243	20.25	0.10	0.056	0.049	(0.050)	0.007
244	20.33	0.10	0.056	0.049	(0.050)	0.007
245	20.42	0.10	0.056	0.049	(0.050)	0.007
246	20.50	0.10	0.056	0.049	(0.050)	0.007
247	20.58	0.10	0.056	0.048	(0.050)	0.007
248	20.67	0.10	0.056	0.048	(0.050)	0.008
249	20.75	0.10	0.056	0.048	(0.050)	0.008
250	20.83	0.07	0.037	(0.048)	0.033	0.004
251	20.92	0.07	0.037	(0.048)	0.033	0.004
252	21.00	0.07	0.037	(0.047)	0.033	0.004
253	21.08	0.10	0.056	0.047	(0.050)	0.009
254	21.17	0.10	0.056	0.047	(0.050)	0.009
255	21.25	0.10	0.056	0.047	(0.050)	0.009
256	21.33	0.07	0.037	(0.047)	0.033	0.004
257	21.42	0.07	0.037	(0.046)	0.033	0.004
258	21.50	0.07	0.037	(0.046)	0.033	0.004
259	21.58	0.10	0.056	0.046	(0.050)	0.010
260	21.67	0.10	0.056	0.046	(0.050)	0.010
261	21.75	0.10	0.056	0.046	(0.050)	0.010
262	21.83	0.07	0.037	(0.046)	0.033	0.004
263	21.92	0.07	0.037	(0.045)	0.033	0.004
264	22.00	0.07	0.037	(0.045)	0.033	0.004
265	22.08	0.10	0.056	0.045	(0.050)	0.011
266	22.17	0.10	0.056	0.045	(0.050)	0.011
267	22.25	0.10	0.056	0.045	(0.050)	0.011
268	22.33	0.07	0.037	(0.045)	0.033	0.004
269	22.42	0.07	0.037	(0.045)	0.033	0.004
270	22.50	0.07	0.037	(0.044)	0.033	0.004
271	22.58	0.07	0.037	(0.044)	0.033	0.004
272	22.67	0.07	0.037	(0.044)	0.033	0.004
273	22.75	0.07	0.037	(0.044)	0.033	0.004
274	22.83	0.07	0.037	(0.044)	0.033	0.004
275	22.92	0.07	0.037	(0.044)	0.033	0.004
276	23.00	0.07	0.037	(0.044)	0.033	0.004
277	23.08	0.07	0.037	(0.044)	0.033	0.004
278	23.17	0.07	0.037	(0.044)	0.033	0.004
279	23.25	0.07	0.037	(0.043)	0.033	0.004
280	23.33	0.07	0.037	(0.043)	0.033	0.004
281	23.42	0.07	0.037	(0.043)	0.033	0.004
282	23.50	0.07	0.037	(0.043)	0.033	0.004
283	23.58	0.07	0.037	(0.043)	0.033	0.004
284	23.67	0.07	0.037	(0.043)	0.033	0.004
285	23.75	0.07	0.037	(0.043)	0.033	0.004
286	23.83	0.07	0.037	(0.043)	0.033	0.004
287	23.92	0.07	0.037	(0.043)	0.033	0.004
288	24.00	0.07	0.037	(0.043)	0.033	0.004

(Loss Rate Not Used)

Sum =	100.0	Sum =	35.1
Flood volume =	Effective rainfall	2.92(In)	
times area	5.5(Ac.)/[(In)/(Ft.)] =	1.3(Ac.Ft)	
Total soil loss =	1.72(In)		
Total soil loss =	0.791(Ac.Ft)		
Total rainfall =	4.64(In)		
Flood volume =	58694.6 Cubic Feet		
Total soil loss =	34447.3 Cubic Feet		

Peak flow rate of this hydrograph = 3.107(CFS)

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0000	0.01	Q			
0+10	0.0002	0.02	Q			
0+15	0.0003	0.02	Q			
0+20	0.0005	0.02	Q			
0+25	0.0007	0.03	Q			
0+30	0.0009	0.03	Q			
0+35	0.0011	0.03	Q			
0+40	0.0013	0.03	Q			
0+45	0.0015	0.03	Q			
0+50	0.0018	0.03	Q			
0+55	0.0020	0.04	Q			
1+ 0	0.0023	0.04	Q			
1+ 5	0.0026	0.04	Q			
1+10	0.0028	0.03	Q			
1+15	0.0030	0.03	Q			
1+20	0.0032	0.03	Q			
1+25	0.0035	0.03	Q			
1+30	0.0037	0.03	Q			
1+35	0.0039	0.03	Q			
1+40	0.0041	0.03	Q			
1+45	0.0043	0.03	Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+50	0.0045	0.03	Q	|	|	|
1+55	0.0048	0.04	Q	|	|	|
2+ 0	0.0051	0.04	Q	|	|	|
2+ 5	0.0054	0.04	Q	|	|	|
2+10	0.0057	0.04	Q	|	|	|
2+15	0.0060	0.04	Q	|	|	|
2+20	0.0062	0.04	Q	|	|	|
2+25	0.0065	0.04	Q	|	|	|
2+30	0.0068	0.04	Q	|	|	|
2+35	0.0071	0.04	Q	|	|	|
2+40	0.0075	0.05	Q	|	|	|
2+45	0.0078	0.05	Q	|	|	|
2+50	0.0082	0.05	Q	|	|	|
2+55	0.0085	0.05	Q	|	|	|
3+ 0	0.0089	0.05	Q	|	|	|
3+ 5	0.0093	0.05	Q	|	|	|
3+10	0.0096	0.05	Q	|	|	|
3+15	0.0100	0.05	Q	|	|	|
3+20	0.0103	0.05	Q	|	|	|
3+25	0.0107	0.05	Q	|	|	|
3+30	0.0110	0.05	Q	|	|	|
3+35	0.0114	0.05	Q	|	|	|
3+40	0.0117	0.05	Q	|	|	|
3+45	0.0121	0.05	Q	|	|	|
3+50	0.0125	0.06	Q	|	|	|
3+55	0.0129	0.06	Q	|	|	|
4+ 0	0.0133	0.06	Q	|	|	|
4+ 5	0.0138	0.06	Q	|	|	|
4+10	0.0142	0.06	Q	|	|	|
4+15	0.0146	0.06	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+20	0.0151	0.07	Q	|	|	|
4+25	0.0155	0.07	Q	|	|	|
4+30	0.0160	0.07	Q	|	|	|
4+35	0.0165	0.07	Q	|	|	|
4+40	0.0170	0.07	Q	|	|	|
4+45	0.0175	0.07	Q	|	|	|
4+50	0.0182	0.10	Q	|	|	|
4+55	0.0192	0.15	Q	|	|	|
5+ 0	0.0203	0.16	Q	|	|	|
5+ 5	0.0212	0.13	Q	|	|	|
5+10	0.0217	0.08	Q	|	|	|
5+15	0.0222	0.06	Q	|	|	|
5+20	0.0226	0.07	Q	|	|	|
5+25	0.0231	0.07	Q	|	|	|
5+30	0.0236	0.07	Q	|	|	|
5+35	0.0244	0.11	Q	|	|	|
5+40	0.0255	0.17	Q	|	|	|
5+45	0.0268	0.18	Q	|	|	|
5+50	0.0281	0.19	Q	|	|	|
5+55	0.0294	0.19	Q	|	|	|
6+ 0	0.0307	0.19	Q	|	|	|
6+ 5	0.0323	0.23	Q	|	|	|
6+10	0.0343	0.29	|Q	|	|	|
6+15	0.0364	0.30	|Q	|	|	|
6+20	0.0385	0.31	|Q	|	|	|
6+25	0.0407	0.31	|Q	|	|	|
6+30	0.0428	0.31	|Q	|	|	|
6+35	0.0453	0.35	|Q	|	|	|
6+40	0.0481	0.41	|Q	|	|	|
6+45	0.0510	0.42	|Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+50	0.0539	0.43	| Q	|	|	|
6+55	0.0569	0.43	| Q	|	|	|
7+ 0	0.0599	0.43	| Q	|	|	|
7+ 5	0.0629	0.44	| Q	|	|	|
7+10	0.0659	0.44	| Q	|	|	|
7+15	0.0690	0.44	| QV	|	|	|
7+20	0.0723	0.48	| QV	|	|	|
7+25	0.0760	0.54	| Q	|	|	|
7+30	0.0798	0.55	| Q	|	|	|
7+35	0.0839	0.59	| Q	|	|	|
7+40	0.0883	0.65	| Q	|	|	|
7+45	0.0929	0.66	| Q	|	|	|
7+50	0.0977	0.70	| Q	|	|	|
7+55	0.1029	0.76	| Q	|	|	|
8+ 0	0.1083	0.77	| Q	|	|	|
8+ 5	0.1141	0.85	| Q	|	|	|
8+10	0.1207	0.96	| Q	|	|	|
8+15	0.1275	0.99	| Q	|	|	|
8+20	0.1344	0.99	| Q	|	|	|
8+25	0.1412	1.00	| QV	|	|	|
8+30	0.1481	1.00	| QV	|	|	|
8+35	0.1552	1.04	| Q	|	|	|
8+40	0.1628	1.09	| Q	|	|	|
8+45	0.1704	1.11	| QV	|	|	|
8+50	0.1783	1.15	| QV	|	|	|
8+55	0.1866	1.21	| QV	|	|	|
9+ 0	0.1950	1.22	| QV	|	|	|
9+ 5	0.2039	1.29	| QV	|	|	|
9+10	0.2136	1.41	| QV	|	|	|
9+15	0.2234	1.43	| QV	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+20	0.2336	1.47	|	QV	|	|	|
9+25	0.2441	1.53	|	QV	|	|	|
9+30	0.2548	1.54	|	QV	|	|	|
9+35	0.2657	1.58	|	QV	|	|	|
9+40	0.2770	1.64	|	Q V	|	|	|
9+45	0.2884	1.66	|	Q V	|	|	|
9+50	0.3000	1.69	|	Q V	|	|	|
9+55	0.3121	1.75	|	Q V	|	|	|
10+ 0	0.3243	1.77	|	Q V	|	|	|
10+ 5	0.3349	1.53	|	Q V	|	|	|
10+10	0.3428	1.15	|	Q	V	|	|
10+15	0.3502	1.07	|	Q	V	|	|
10+20	0.3574	1.06	|	Q	V	|	|
10+25	0.3647	1.06	|	Q	V	|	|
10+30	0.3720	1.06	|	Q	|V	|	|
10+35	0.3805	1.23	|	Q	|V	|	|
10+40	0.3909	1.51	|	Q	|V	|	|
10+45	0.4017	1.57	|	Q	|V	|	|
10+50	0.4126	1.58	|	Q	| V	|	|
10+55	0.4236	1.59	|	Q	| V	|	|
11+ 0	0.4345	1.59	|	Q	| V	|	|
11+ 5	0.4453	1.56	|	Q	| V	|	|
11+10	0.4557	1.51	|	Q	| V	|	|
11+15	0.4660	1.50	|	Q	| V	|	|
11+20	0.4763	1.50	|	Q	| V	|	|
11+25	0.4866	1.50	|	Q	| V	|	|
11+30	0.4970	1.50	|	Q	| V	|	|
11+35	0.5069	1.44	|	Q	| V	|	|
11+40	0.5160	1.33	|	Q	| V	|	|
11+45	0.5250	1.31	|	Q	| V	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+50	0.5342	1.34	Q	V	
11+55	0.5438	1.40	Q	V	
12+ 0	0.5535	1.41	Q	V	
12+ 5	0.5649	1.65	Q	V	
12+10	0.5790	2.04	Q	V	
12+15	0.5936	2.12	Q	V	
12+20	0.6086	2.17	Q	V	
12+25	0.6240	2.24	Q	V	
12+30	0.6395	2.25	Q	V	
12+35	0.6555	2.32	Q	V	
12+40	0.6723	2.44	Q	V	
12+45	0.6892	2.46	Q	V	
12+50	0.7064	2.50	Q	V	
12+55	0.7241	2.56	Q	V	
13+ 0	0.7418	2.57	Q	V	
13+ 5	0.7607	2.75	Q	V	
13+10	0.7816	3.03	Q	V	
13+15	0.8028	3.09	Q	V	
13+20	0.8242	3.10	Q	V	
13+25	0.8456	3.11	Q	V	
13+30	0.8670	3.11	Q	V	
13+35	0.8858	2.74	Q	V	
13+40	0.9005	2.13	Q	V	
13+45	0.9143	2.01	Q	V	
13+50	0.9280	1.98	Q	V	
13+55	0.9416	1.98	Q	V	
14+ 0	0.9552	1.98	Q	V	
14+ 5	0.9698	2.12	Q	V	
14+10	0.9860	2.34	Q	V	
14+15	1.0024	2.39	Q	V	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+20	1.0187	2.37	|	Q|	|	v
14+25	1.0347	2.32	|	Q|	|	v
14+30	1.0506	2.31	|	Q|	|	|v
14+35	1.0664	2.31	|	Q|	|	|v
14+40	1.0823	2.31	|	Q|	|	|v
14+45	1.0982	2.31	|	Q|	|	|v
14+50	1.1139	2.28	|	Q|	|	|v
14+55	1.1292	2.22	|	Q|	|	|v
15+ 0	1.1445	2.21	|	Q|	|	|v
15+ 5	1.1595	2.18	|	Q|	|	|v
15+10	1.1742	2.13	|	Q|	|	|v
15+15	1.1887	2.12	|	Q|	|	|v
15+20	1.2031	2.08	|	Q|	|	|v
15+25	1.2171	2.03	|	Q|	|	|v
15+30	1.2310	2.02	|	Q|	|	|v
15+35	1.2439	1.88	|	Q|	|	|v
15+40	1.2554	1.66	|	Q|	|	|v
15+45	1.2665	1.62	|	Q|	|	|v
15+50	1.2776	1.61	|	Q|	|	|v
15+55	1.2887	1.61	|	Q|	|	|v
16+ 0	1.2999	1.61	|	Q|	|	|v
16+ 5	1.3075	1.11	|	Q|	|	|v
16+10	1.3094	0.28	|	Q|	|	|v
16+15	1.3101	0.11	Q	|	|	|v
16+20	1.3107	0.08	Q	|	|	|v
16+25	1.3112	0.07	Q	|	|	|v
16+30	1.3117	0.07	Q	|	|	|v
16+35	1.3121	0.06	Q	|	|	|v
16+40	1.3123	0.04	Q	|	|	|v
16+45	1.3125	0.03	Q	|	|	|v

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	16+50	1.3127	0.03	Q	|	|	|	V
|	16+55	1.3130	0.03	Q	|	|	|	V
|	17+ 0	1.3132	0.03	Q	|	|	|	V
|	17+ 5	1.3137	0.08	Q	|	|	|	V
|	17+10	1.3149	0.17	Q	|	|	|	
V|	17+15	1.3162	0.19	Q	|	|	|	
V|	17+20	1.3175	0.19	Q	|	|	|	
V|	17+25	1.3188	0.19	Q	|	|	|	
V|	17+30	1.3202	0.20	Q	|	|	|	
V|	17+35	1.3215	0.20	Q	|	|	|	
V|	17+40	1.3229	0.20	Q	|	|	|	
V|	17+45	1.3243	0.20	Q	|	|	|	
V|	17+50	1.3254	0.17	Q	|	|	|	
V|	17+55	1.3262	0.11	Q	|	|	|	
V|	18+ 0	1.3269	0.10	Q	|	|	|	
V|	18+ 5	1.3277	0.10	Q	|	|	|	
V|	18+10	1.3284	0.10	Q	|	|	|	
V|	18+15	1.3291	0.11	Q	|	|	|	
V|	18+20	1.3299	0.11	Q	|	|	|	
V|	18+25	1.3306	0.11	Q	|	|	|	
V|	18+30	1.3314	0.11	Q	|	|	|	
V|	18+35	1.3320	0.09	Q	|	|	|	
V|	18+40	1.3322	0.04	Q	|	|	|	
V|	18+45	1.3325	0.03	Q	|	|	|	
V|	18+50	1.3327	0.03	Q	|	|	|	
V|	18+55	1.3328	0.02	Q	|	|	|	
V|	19+ 0	1.3330	0.02	Q	|	|	|	
V|	19+ 5	1.3331	0.02	Q	|	|	|	
V|	19+10	1.3333	0.03	Q	|	|	|	
V|	19+15	1.3335	0.03	Q	|	|	|	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	19+20	1.3340	0.06	Q	|	|	|
V|	19+25	1.3348	0.11	Q	|	|	|
V|	19+30	1.3356	0.12	Q	|	|	|
V|	19+35	1.3363	0.10	Q	|	|	|
V|	19+40	1.3366	0.04	Q	|	|	|
V|	19+45	1.3368	0.03	Q	|	|	|
V|	19+50	1.3370	0.03	Q	|	|	|
V|	19+55	1.3372	0.02	Q	|	|	|
V|	20+ 0	1.3373	0.02	Q	|	|	|
V|	20+ 5	1.3375	0.03	Q	|	|	|
V|	20+10	1.3377	0.03	Q	|	|	|
V|	20+15	1.3379	0.03	Q	|	|	|
V|	20+20	1.3382	0.04	Q	|	|	|
V|	20+25	1.3384	0.04	Q	|	|	|
V|	20+30	1.3387	0.04	Q	|	|	|
V|	20+35	1.3390	0.04	Q	|	|	|
V|	20+40	1.3393	0.04	Q	|	|	|
V|	20+45	1.3396	0.04	Q	|	|	|
V|	20+50	1.3398	0.04	Q	|	|	|
V|	20+55	1.3400	0.02	Q	|	|	|
V|	21+ 0	1.3401	0.02	Q	|	|	|
V|	21+ 5	1.3403	0.03	Q	|	|	|
V|	21+10	1.3406	0.04	Q	|	|	|
V|	21+15	1.3410	0.05	Q	|	|	|
V|	21+20	1.3412	0.04	Q	|	|	|
V|	21+25	1.3414	0.02	Q	|	|	|
V|	21+30	1.3415	0.02	Q	|	|	|
V|	21+35	1.3418	0.03	Q	|	|	|
V|	21+40	1.3421	0.05	Q	|	|	|
V|	21+45	1.3425	0.05	Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	1.3428	0.04	Q	|	|	|
V|	21+55	1.3429	0.03	Q	|	|	|
V|	22+ 0	1.3431	0.02	Q	|	|	|
V|	22+ 5	1.3433	0.03	Q	|	|	|
V|	22+10	1.3437	0.05	Q	|	|	|
V|	22+15	1.3441	0.06	Q	|	|	|
V|	22+20	1.3444	0.05	Q	|	|	|
V|	22+25	1.3446	0.03	Q	|	|	|
V|	22+30	1.3448	0.02	Q	|	|	|
V|	22+35	1.3449	0.02	Q	|	|	|
V|	22+40	1.3450	0.02	Q	|	|	|
V|	22+45	1.3452	0.02	Q	|	|	|
V|	22+50	1.3453	0.02	Q	|	|	|
V|	22+55	1.3455	0.02	Q	|	|	|
V|	23+ 0	1.3456	0.02	Q	|	|	|
V|	23+ 5	1.3458	0.02	Q	|	|	|
V|	23+10	1.3459	0.02	Q	|	|	|
V|	23+15	1.3460	0.02	Q	|	|	|
V|	23+20	1.3462	0.02	Q	|	|	|
V|	23+25	1.3463	0.02	Q	|	|	|
V|	23+30	1.3465	0.02	Q	|	|	|
V|	23+35	1.3466	0.02	Q	|	|	|
V|	23+40	1.3468	0.02	Q	|	|	|
V|	23+45	1.3469	0.02	Q	|	|	|
V|	23+50	1.3470	0.02	Q	|	|	|
V|	23+55	1.3472	0.02	Q	|	|	|
V|	24+ 0	1.3473	0.02	Q	|	|	|
V|	24+ 5	1.3474	0.01	Q	|	|	|
V|	24+10	1.3474	0.00	Q	|	|	|
V|	24+15	1.3474	0.00	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33preb12.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff

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Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
0.013 Sq. Mi.
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090
Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

8.04 0.47 3.75

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 8.04 1.19 9.57

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 0.466(In)
 Area Averaged 100-Year Rainfall = 1.190(In)

Point rain (area averaged) = 0.466(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 0.466(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	84.0	0.198	0.000	0.198	1.000	
0.198						Sum (F) =
0.198						

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 Slope of intensity-duration curve for a 1 hour storm =0.5500

Unit Hydrograph
 FOOTHILL S-Curve

 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	2.011
2	0.167	261.045	4.506
3	0.250	391.568	1.151
4	0.333	522.090	0.315
5	0.417	652.613	0.084
6	0.500	783.135	0.035
		Sum = 100.000	Sum= 8.103

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.185	(0.198)	0.166	0.018
2	0.17	4.20	0.235	0.198	(0.211)	0.036
3	0.25	4.40	0.246	0.198	(0.221)	0.048
4	0.33	4.80	0.268	0.198	(0.242)	0.070
5	0.42	5.20	0.291	0.198	(0.262)	0.092
6	0.50	6.20	0.347	0.198	(0.312)	0.148
7	0.58	6.80	0.380	0.198	(0.342)	0.182
8	0.67	8.80	0.492	0.198	(0.443)	0.294
9	0.75	13.90	0.777	0.198	(0.700)	0.579
10	0.83	31.40	1.756	0.198	(1.580)	1.557
11	0.92	7.20	0.403	0.198	(0.362)	0.204
12	1.00	3.80	0.212	(0.198)	0.191	0.021

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.3

Flood volume = Effective rainfall 0.27(In)
times area 8.0(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)

Total soil loss = 0.20(In)
Total soil loss = 0.131(Ac.Ft)
Total rainfall = 0.47(In)
Flood volume = 7905.0 Cubic Feet
Total soil loss = 5694.3 Cubic Feet

Peak flow rate of this hydrograph = 8.212(CFS)

1 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0003	0.04	Q			
0+10	0.0013	0.16	Q			
0+15	0.0033	0.28	VQ			
0+20	0.0060	0.40	|Q			
0+25	0.0100	0.57	| Q			
0+30	0.0156	0.81	| Q			
0+35	0.0236	1.17	| QV			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

|	0+40	0.0348	1.62	|	QV	|	|	|
|	0+45	0.0537	2.75	|	|	|	|	|
|	0+50	0.0961	6.15	|	|	|	V Q	|
|	0+55	0.1527	8.21	|	|	|	|	QV
|	1+ 0	0.1731	2.97	|	|	|	|	V
|	1+ 5	0.1792	0.88	|	Q	|	|	|
V|	1+10	0.1809	0.24	Q	|	|	|	|
V|	1+15	0.1814	0.08	Q	|	|	|	|
V|	1+20	0.1815	0.01	Q	|	|	|	|
V|	1+25	0.1815	0.00	Q	|	|	|	|
V								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33preb15.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--
0.013
(Ft.)
Mi.
Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
0.013 Sq. Mi.
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090
Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

8.04 0.47 3.75

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 8.04 1.19 9.57

STORM EVENT (YEAR) = 5.00
 Area Averaged 2-Year Rainfall = 0.466(In)
 Area Averaged 100-Year Rainfall = 1.190(In)

Point rain (area averaged) = 0.636(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 0.636(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	84.0	0.198	0.000	0.198	1.000	
0.198						Sum (F) =
0.198						

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 Slope of intensity-duration curve for a 1 hour storm =0.5500

Unit Hydrograph
 FOOTHILL S-Curve

 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	24.817
2	0.167	261.045	55.614
3	0.250	391.568	14.211
4	0.333	522.090	3.889
5	0.417	652.613	1.032
6	0.500	783.135	0.438
		Sum = 100.000	Sum= 8.103

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.252	0.198	(0.227)	0.053
2	0.17	4.20	0.320	0.198	(0.288)	0.122
3	0.25	4.40	0.336	0.198	(0.302)	0.137
4	0.33	4.80	0.366	0.198	(0.329)	0.168
5	0.42	5.20	0.397	0.198	(0.357)	0.198
6	0.50	6.20	0.473	0.198	(0.426)	0.274
7	0.58	6.80	0.519	0.198	(0.467)	0.320
8	0.67	8.80	0.671	0.198	(0.604)	0.473
9	0.75	13.90	1.060	0.198	(0.954)	0.862
10	0.83	31.40	2.395	0.198	(2.155)	2.196
11	0.92	7.20	0.549	0.198	(0.494)	0.351
12	1.00	3.80	0.290	0.198	(0.261)	0.091

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.2

Flood volume = Effective rainfall 0.44(In)
times area 8.0(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)

Total soil loss = 0.20(In)

Total soil loss = 0.133(Ac.Ft)

Total rainfall = 0.64(In)

Flood volume = 12757.8 Cubic Feet

Total soil loss = 5790.3 Cubic Feet

Peak flow rate of this hydrograph = 11.786(CFS)

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1 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 5.0 10.0 15.0
20.0

0+ 5	0.0007	0.11	Q	|	|	|
0+10	0.0041	0.49	Q	|	|	|
0+15	0.0102	0.89	|Q	|	|	|
0+20	0.0179	1.11	| Q	|	|	|
0+25	0.0272	1.36	| QV	|	|	|
0+30	0.0389	1.69	| Q V	|	|	|
0+35	0.0539	2.18	| Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

|	0+40	0.0731	2.79	|	Q	V|	|	|
|	0+45	0.1030	4.34	|		Q |	V	|
|	0+50	0.1648	8.98	|		|	Q |	V |
|	0+55	0.2460	11.79	|		|	|	Q |
|	1+ 0	0.2778	4.62	|		Q|	|	|
|	1+ 5	0.2888	1.60	|	Q	|	|	|
V|	1+10	0.2918	0.43	Q		|	|	|
V|	1+15	0.2927	0.14	Q		|	|	|
V|	1+20	0.2929	0.02	Q		|	|	|
V|	1+25	0.2929	0.00	Q		|	|	|
V								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33preb110

Unit Hydrograph Analysis

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Study date 02/19/21 File: moval 33preb110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff

Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Sq. Mi. Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090 Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.04	0.47	3.75

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.04	1.19	9.57

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.466(In)
Area Averaged 100-Year Rainfall = 1.190(In)

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33preb110

Point rain (area averaged) = 0.764(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 0.764(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
						Sum (F) = 0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	24.817
2	0.167	261.045	55.614
3	0.250	391.568	14.211
4	0.333	522.090	3.889
5	0.417	652.613	1.032
6	0.500	783.135	0.438
Sum = 100.000			Sum= 8.103

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max | Low	Effective (In/Hr)
1	0.08	3.30	0.198 (0.272)	0.104
2	0.17	4.20	0.198 (0.346)	0.187
3	0.25	4.40	0.198 (0.363)	0.205
4	0.33	4.80	0.198 (0.396)	0.242
5	0.42	5.20	0.198 (0.429)	0.278
6	0.50	6.20	0.198 (0.511)	0.370
7	0.58	6.80	0.198 (0.561)	0.425
8	0.67	8.80	0.198 (0.726)	0.608
9	0.75	13.90	0.198 (1.147)	1.076
10	0.83	31.40	0.198 (2.590)	2.680
11	0.92	7.20	0.198 (0.594)	0.462
12	1.00	3.80	0.198 (0.313)	0.150

Sum = 100.0 (Loss Rate Not Used) Sum = 6.8

Flood volume = Effective rainfall 0.57(In)
 times area 8.0(Ac.) / [(In)/(Ft.)] = 0.4(Ac. Ft)
 Total soil loss = 0.20(In)

moval 33preb110
 Total soil loss = 0.133(Ac. Ft)
 Total rainfall = 0.76(In)
 Flood volume = 16501.4 Cubic Feet
 Total soil loss = 5790.3 Cubic Feet

 Peak flow rate of this hydrograph = 14.490(CFS)

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 1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac. Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0014	0.21	0.21	Q				
0+10	0.0073	0.84	0.84	VQ				
0+15	0.0167	1.37	1.37	VQ				
0+20	0.0281	1.66	1.66	VQ				
0+25	0.0416	1.95	1.95	QV				
0+30	0.0578	2.36	2.36	Q V				
0+35	0.0781	2.94	2.94	Q V				
0+40	0.1034	3.68	3.68	Q V				
0+45	0.1416	5.54	5.54	Q V				
0+50	0.2182	11.12	11.12	Q V				
0+55	0.3180	14.49	14.49	Q V		QV	Q	V
1+ 0	0.3584	5.87	5.87	Q	Q			V
1+ 5	0.3733	2.16	2.16	Q				V
1+10	0.3773	0.58	0.58	Q				V
1+15	0.3786	0.18	0.18	Q				V
1+20	0.3788	0.03	0.03	Q				V
1+25	0.3788	0.01	0.01	Q				V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33preb1100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

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Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
0.013 Sq. Mi.
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090
Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

8.04 0.47 3.75

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 8.04 1.19 9.57

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.466(In)
 Area Averaged 100-Year Rainfall = 1.190(In)

Point rain (area averaged) = 1.190(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.190(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI (In/Hr)	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	93.4	0.086	0.000	0.086	1.000	
0.086						
						Sum (F) =
0.086						

Area averaged mean soil loss (F) (In/Hr) = 0.086
 Minimum soil loss rate ((In/Hr)) = 0.043
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 Slope of intensity-duration curve for a 1 hour storm =0.5500

Unit Hydrograph
 FOOTHILL S-Curve

 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	24.817
2	0.167	261.045	55.614
3	0.250	391.568	14.211
4	0.333	522.090	3.889
5	0.417	652.613	1.032
6	0.500	783.135	0.438
		Sum = 100.000	Sum= 8.103

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.471	0.086	(0.424)	0.385
2	0.17	4.20	0.600	0.086	(0.540)	0.514
3	0.25	4.40	0.628	0.086	(0.565)	0.542
4	0.33	4.80	0.685	0.086	(0.617)	0.600
5	0.42	5.20	0.743	0.086	(0.668)	0.657
6	0.50	6.20	0.885	0.086	(0.797)	0.799
7	0.58	6.80	0.971	0.086	(0.874)	0.885
8	0.67	8.80	1.257	0.086	(1.131)	1.171
9	0.75	13.90	1.985	0.086	(1.786)	1.899
10	0.83	31.40	4.484	0.086	(4.035)	4.398
11	0.92	7.20	1.028	0.086	(0.925)	0.942
12	1.00	3.80	0.543	0.086	(0.488)	0.457

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.2

Flood volume = Effective rainfall 1.10(In)
times area 8.0(Ac.)/[(In)/(Ft.)] = 0.7(Ac.Ft)

Total soil loss = 0.09(In)

Total soil loss = 0.057(Ac.Ft)

Total rainfall = 1.19(In)

Flood volume = 32223.8 Cubic Feet

Total soil loss = 2504.1 Cubic Feet

Peak flow rate of this hydrograph = 24.383(CFS)

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1 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 7.5 15.0 22.5
30.0

0+ 5	0.0053	0.78	VQ	|	|	|
0+10	0.0244	2.77	|V Q	|	|	|
0+15	0.0510	3.85	| V Q	|	|	|
0+20	0.0810	4.37	| VQ	|	|	|
0+25	0.1144	4.84	| Q	|	|	|
0+30	0.1522	5.49	| QV	|	|	|
0+35	0.1962	6.39	| Q V	|	|	|

	0+40	0.2482	7.54	|	Q	V	|		|
	0+45	0.3201	10.45	|		Q	V	|	|
	0+50	0.4519	19.13	|				VQ	|
	0+55	0.6198	24.38	|					QV
	1+ 0	0.6953	10.96	|		Q			V
V|	1+ 5	0.7279	4.73	|	Q				
V|	1+10	0.7365	1.26	|	Q				
V|	1+15	0.7392	0.38	Q					
V|	1+20	0.7396	0.07	Q					
V	1+25	0.7398	0.02	Q					

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preb32.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--

Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
0.013 Sq. Mi.
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090
Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

8.04 0.80 6.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.04	1.89	15.20

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 0.799(In)
 Area Averaged 100-Year Rainfall = 1.890(In)

Point rain (area averaged) = 0.799(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 0.799(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
8.040	84.00	0.000
Total Area Entered = 8.04(Ac.)		

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	84.0	0.198	0.000	0.198	1.000	
0.198						
						Sum (F) =
0.198						

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 F O O T H I L L S - C u r v e

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 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	2.011
2	0.167	261.045	4.506
3	0.250	391.568	1.151
4	0.333	522.090	0.315
5	0.417	652.613	0.084
6	0.500	783.135	0.035
		Sum = 100.000	Sum= 8.103

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective

Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.125	(0.198)	0.112	0.012
2	0.17	1.30	0.125	(0.198)	0.112	0.012
3	0.25	1.10	0.105	(0.198)	0.095	0.011
4	0.33	1.50	0.144	(0.198)	0.129	0.014
5	0.42	1.50	0.144	(0.198)	0.129	0.014
6	0.50	1.80	0.173	(0.198)	0.155	0.017
7	0.58	1.50	0.144	(0.198)	0.129	0.014
8	0.67	1.80	0.173	(0.198)	0.155	0.017
9	0.75	1.80	0.173	(0.198)	0.155	0.017
10	0.83	1.50	0.144	(0.198)	0.129	0.014
11	0.92	1.60	0.153	(0.198)	0.138	0.015
12	1.00	1.80	0.173	(0.198)	0.155	0.017
13	1.08	2.20	0.211	(0.198)	0.190	0.021
14	1.17	2.20	0.211	(0.198)	0.190	0.021
15	1.25	2.20	0.211	(0.198)	0.190	0.021
16	1.33	2.00	0.192	(0.198)	0.173	0.019
17	1.42	2.60	0.249	0.198	(0.224)	0.051
18	1.50	2.70	0.259	0.198	(0.233)	0.060
19	1.58	2.40	0.230	0.198	(0.207)	0.032
20	1.67	2.70	0.259	0.198	(0.233)	0.060
21	1.75	3.30	0.316	0.198	(0.285)	0.118
22	1.83	3.10	0.297	0.198	(0.267)	0.099
23	1.92	2.90	0.278	0.198	(0.250)	0.080
24	2.00	3.00	0.288	0.198	(0.259)	0.089
25	2.08	3.10	0.297	0.198	(0.267)	0.099
26	2.17	4.20	0.403	0.198	(0.362)	0.204
27	2.25	5.00	0.479	0.198	(0.431)	0.281
28	2.33	3.50	0.336	0.198	(0.302)	0.137
29	2.42	6.80	0.652	0.198	(0.587)	0.454
30	2.50	7.30	0.700	0.198	(0.630)	0.501
31	2.58	8.20	0.786	0.198	(0.708)	0.588
32	2.67	5.90	0.566	0.198	(0.509)	0.367
33	2.75	2.00	0.192	(0.198)	0.173	0.019
34	2.83	1.80	0.173	(0.198)	0.155	0.017
35	2.92	1.80	0.173	(0.198)	0.155	0.017
36	3.00	0.60	0.058	(0.198)	0.052	0.006

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.5

Flood volume = Effective rainfall 0.29(In)
times area 8.0(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 0.50(In)
Total soil loss = 0.338(Ac.Ft)
Total rainfall = 0.80(In)
Flood volume = 8609.2 Cubic Feet
Total soil loss = 14708.9 Cubic Feet

Peak flow rate of this hydrograph = 4.131(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0002	0.03	Q	|	|	|
0+10	0.0007	0.08	Q	|	|	|
0+15	0.0014	0.09	Q	|	|	|
0+20	0.0020	0.09	Q	|	|	|
0+25	0.0028	0.11	Q	|	|	|
0+30	0.0036	0.12	Q	|	|	|
0+35	0.0045	0.13	Q	|	|	|
0+40	0.0054	0.13	QV	|	|	|
0+45	0.0063	0.14	QV	|	|	|
0+50	0.0072	0.13	QV	|	|	|
0+55	0.0081	0.12	QV	|	|	|
1+ 0	0.0089	0.13	QV	|	|	|
1+ 5	0.0099	0.14	Q V	|	|	|
1+10	0.0111	0.16	Q V	|	|	|
1+15	0.0122	0.17	Q V	|	|	|
1+20	0.0134	0.17	Q V	|	|	|
1+25	0.0149	0.22	Q V	|	|	|
1+30	0.0175	0.38	|Q V	|	|	|
1+35	0.0203	0.40	|Q V	|	|	|
1+40	0.0228	0.35	|Q V	|	|	|
1+45	0.0267	0.57	| Q V	|	|	|
1+50	0.0323	0.82	| Q V	|	|	|
1+55	0.0376	0.77	| Q V	|	|	|
2+ 0	0.0424	0.70	| Q V	|	|	|
2+ 5	0.0474	0.74	| Q V	|	|	|
2+10	0.0543	1.00	| Q V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	2+15	0.0656	1.64	|	Q	|	V	|		|
|	2+20	0.0781	1.82	|	Q	|	V	|		|
|	2+25	0.0914	1.93	|	Q	|		V	|	|
|	2+30	0.1143	3.32	|		|	Q	|	V	|
|	2+35	0.1421	4.04	|		|		Q	|	V
|	2+40	0.1706	4.13	|		|		Q	|	V
|	2+45	0.1883	2.57	|		Q	|		|	V
|	2+50	0.1937	0.79	|	Q	|			|	
V|	2+55	0.1959	0.32	|	Q	|			|	
V|	3+ 0	0.1971	0.17	Q	|				|	
V|	3+ 5	0.1975	0.07	Q	|				|	
V|	3+10	0.1976	0.01	Q	|				|	
V|	3+15	0.1976	0.00	Q	|				|	
V|	3+20	0.1976	0.00	Q	|				|	
V|	3+25	0.1976	0.00	Q	|				|	
V										

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preb35.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--

Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
0.013 Sq. Mi.
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090
Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.165	(0.198)	0.148	0.016
2	0.17	1.30	0.165	(0.198)	0.148	0.016
3	0.25	1.10	0.139	(0.198)	0.125	0.014
4	0.33	1.50	0.190	(0.198)	0.171	0.019
5	0.42	1.50	0.190	(0.198)	0.171	0.019
6	0.50	1.80	0.228	0.198	(0.205)	0.029
7	0.58	1.50	0.190	(0.198)	0.171	0.019
8	0.67	1.80	0.228	0.198	(0.205)	0.029
9	0.75	1.80	0.228	0.198	(0.205)	0.029
10	0.83	1.50	0.190	(0.198)	0.171	0.019
11	0.92	1.60	0.202	(0.198)	0.182	0.020
12	1.00	1.80	0.228	0.198	(0.205)	0.029
13	1.08	2.20	0.278	0.198	(0.251)	0.080
14	1.17	2.20	0.278	0.198	(0.251)	0.080
15	1.25	2.20	0.278	0.198	(0.251)	0.080
16	1.33	2.00	0.253	0.198	(0.228)	0.055
17	1.42	2.60	0.329	0.198	(0.296)	0.131
18	1.50	2.70	0.342	0.198	(0.307)	0.143
19	1.58	2.40	0.304	0.198	(0.273)	0.105
20	1.67	2.70	0.342	0.198	(0.307)	0.143
21	1.75	3.30	0.418	0.198	(0.376)	0.219
22	1.83	3.10	0.392	0.198	(0.353)	0.194
23	1.92	2.90	0.367	0.198	(0.330)	0.169
24	2.00	3.00	0.380	0.198	(0.342)	0.181
25	2.08	3.10	0.392	0.198	(0.353)	0.194
26	2.17	4.20	0.531	0.198	(0.478)	0.333
27	2.25	5.00	0.633	0.198	(0.569)	0.434
28	2.33	3.50	0.443	0.198	(0.399)	0.244
29	2.42	6.80	0.860	0.198	(0.774)	0.662
30	2.50	7.30	0.924	0.198	(0.831)	0.725
31	2.58	8.20	1.038	0.198	(0.934)	0.839
32	2.67	5.90	0.747	0.198	(0.672)	0.548
33	2.75	2.00	0.253	0.198	(0.228)	0.055
34	2.83	1.80	0.228	0.198	(0.205)	0.029
35	2.92	1.80	0.228	0.198	(0.205)	0.029
36	3.00	0.60	0.076	(0.198)	0.068	0.008

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.9

Flood volume = Effective rainfall 0.50(In)
times area 8.0(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
Total soil loss = 0.56(In)
Total soil loss = 0.375(Ac.Ft)
Total rainfall = 1.05(In)
Flood volume = 14451.5 Cubic Feet
Total soil loss = 16324.4 Cubic Feet

Peak flow rate of this hydrograph = 5.967(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0002	0.03	Q			
0+10	0.0010	0.11	Q			
0+15	0.0018	0.12	Q			
0+20	0.0027	0.13	Q			
0+25	0.0037	0.15	Q			
0+30	0.0049	0.17	Q			
0+35	0.0062	0.20	Q			
0+40	0.0075	0.19	Q			
0+45	0.0091	0.22	QV			
0+50	0.0105	0.21	QV			
0+55	0.0117	0.17	QV			
1+ 0	0.0130	0.18	QV			
1+ 5	0.0152	0.33	Q			
1+10	0.0191	0.56	Q			
1+15	0.0234	0.63	Q			
1+20	0.0275	0.59	QV			
1+25	0.0319	0.63	QV			
1+30	0.0386	0.97	QV			
1+35	0.0457	1.03	QV			
1+40	0.0524	0.98	Q V			
1+45	0.0612	1.27	Q V			
1+50	0.0721	1.59	Q V			
1+55	0.0826	1.52	Q V			
2+ 0	0.0925	1.43	Q V			
2+ 5	0.1027	1.49	Q V			
2+10	0.1153	1.83	Q V			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+15	0.1338	2.68	|	Q	V	|	|	
|	2+20	0.1539	2.92	|	|Q	V	|	|	
|	2+25	0.1750	3.06	|	|Q	|V	|	|	
|	2+30	0.2087	4.90	|	|	Q|	V	|	
|	2+35	0.2490	5.85	|	|	|	Q	V	
|	2+40	0.2900	5.97	|	|	|	Q	|	V
|	2+45	0.3165	3.84	|	|	Q	|	|	V
V|	2+50	0.3254	1.29	|	Q	|	|	|	|
V|	2+55	0.3290	0.52	|	Q	|	|	|	|
V|	3+ 0	0.3309	0.27	|	Q	|	|	|	|
V|	3+ 5	0.3316	0.10	Q	|	|	|	|	|
V|	3+10	0.3317	0.02	Q	|	|	|	|	|
V|	3+15	0.3317	0.01	Q	|	|	|	|	|
V|	3+20	0.3318	0.00	Q	|	|	|	|	|
V|	3+25	0.3318	0.00	Q	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33preb310

Unit Hydrograph Analysis

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Study date 02/19/21 File: moval 33preb310.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff

Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Sq. Mi. Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090 Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
8.04	0.80	6.42

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
8.04	1.89	15.20

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.799(In)
Area Averaged 100-Year Rainfall = 1.890(In)

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33preb310

Point rain (area averaged) = 1.248(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.248(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
Sum (F) =						0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of Lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	24.817
2	0.167	261.045	55.614
3	0.250	391.568	14.211
4	0.333	522.090	3.889
5	0.417	652.613	1.032
6	0.500	783.135	0.438
Sum =		100.000	Sum= 8.103

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.195	(0.198)	0.175
2	0.17	1.30	0.195	(0.198)	0.175
3	0.25	1.10	0.165	(0.198)	0.148
4	0.33	1.50	0.225	0.198	(0.202)
5	0.42	1.50	0.225	0.198	(0.202)
6	0.50	1.80	0.270	0.198	(0.243)
7	0.58	1.50	0.225	0.198	(0.202)
8	0.67	1.80	0.270	0.198	(0.243)
9	0.75	1.80	0.270	0.198	(0.243)
10	0.83	1.50	0.225	0.198	(0.202)
11	0.92	1.60	0.240	0.198	(0.216)
12	1.00	1.80	0.270	0.198	(0.243)
13	1.08	2.20	0.329	0.198	(0.296)
14	1.17	2.20	0.329	0.198	(0.296)
15	1.25	2.20	0.329	0.198	(0.296)
16	1.33	2.00	0.299	0.198	(0.270)
17	1.42	2.60	0.389	0.198	(0.350)
18	1.50	2.70	0.404	0.198	(0.364)
19	1.58	2.40	0.359	0.198	(0.323)

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20	1.67	2.70	0.404	0.198	(0.364)	0.206
21	1.75	3.30	0.494	0.198	(0.445)	0.296
22	1.83	3.10	0.464	0.198	(0.418)	0.266
23	1.92	2.90	0.434	0.198	(0.391)	0.236
24	2.00	3.00	0.449	0.198	(0.404)	0.251
25	2.08	3.10	0.464	0.198	(0.418)	0.266
26	2.17	4.20	0.629	0.198	(0.566)	0.430
27	2.25	5.00	0.749	0.198	(0.674)	0.550
28	2.33	3.50	0.524	0.198	(0.472)	0.326
29	2.42	6.80	1.018	0.198	(0.916)	0.820
30	2.50	7.30	1.093	0.198	(0.984)	0.895
31	2.58	8.20	1.228	0.198	(1.105)	1.029
32	2.67	5.90	0.883	0.198	(0.795)	0.685
33	2.75	2.00	0.299	0.198	(0.270)	0.101
34	2.83	1.80	0.270	0.198	(0.243)	0.071
35	2.92	1.80	0.270	0.198	(0.243)	0.071
36	3.00	0.60	0.090	(0.198)	0.081	0.009

(Loss Rate Not Used)
 Sum = 100.0
 Flood volume = Effective rainfall 0.67(In) times area 8.0(Ac.)/[(In)/(Ft.)] = 0.4(Ac. Ft)
 Total soil loss = 0.58(In)
 Total soil loss = 0.387(Ac. Ft)
 Total rainfall = 1.25(In)
 Flood volume = 19567.1 Cubic Feet
 Total soil loss = 16850.3 Cubic Feet

 Peak flow rate of this hydrograph = 7.356(CFS)

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 3 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac. Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0003	0.04	Q				
0+10	0.0011	0.13	Q				
0+15	0.0021	0.14	Q				
0+20	0.0032	0.16	Q				
0+25	0.0046	0.20	Q				
0+30	0.0066	0.30	VQ				
0+35	0.0095	0.41	VQ				
0+40	0.0119	0.35	Q				
0+45	0.0155	0.52	VQ				
0+50	0.0187	0.47	Q				
0+55	0.0209	0.31	Q				
1+ 0	0.0235	0.39	QV				
1+ 5	0.0280	0.65	Q				
1+10	0.0346	0.95	Q				
1+15	0.0417	1.03	VQ				
1+20	0.0485	0.99	QV				
1+25	0.0557	1.05	Q				
1+30	0.0657	1.45	Q				
1+35	0.0762	1.52	Q				
1+40	0.0862	1.45	Q	V			
1+45	0.0985	1.79	Q	V			
1+50	0.1135	2.18	Q	V			
1+55	0.1280	2.10	Q	V			
2+ 0	0.1417	1.99	Q	V	V		
2+ 5	0.1558	2.05	Q	V	V		

			moval 33preb310				
2+10	0. 1728	2. 46		Q			
2+15	0. 1966	3. 46			V		
2+20	0. 2224	3. 75		Q	V		
2+25	0. 2494	3. 92		Q	Q		
2+30	0. 2913	6. 09				V	
2+35	0. 3410	7. 21				QV	
2+40	0. 3917	7. 36				Q	V
2+45	0. 4250	4. 84			Q		V
2+50	0. 4375	1. 82		Q			V
2+55	0. 4438	0. 91		Q			V
3+ 0	0. 4476	0. 55	Q				V
3+ 5	0. 4488	0. 18	Q				V
3+10	0. 4491	0. 04	Q				V
3+15	0. 4492	0. 01	Q				V
3+20	0. 4492	0. 00	Q				V
3+25	0. 4492	0. 00	Q				V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preb3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--
Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
Length along longest watercourse = 0.205 Mi.
Mi. Length along longest watercourse measured to centroid = 0.090

Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

8.04 0.80 6.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
8.04	1.89	15.20

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.799(In)
 Area Averaged 100-Year Rainfall = 1.890(In)

Point rain (area averaged) = 1.890(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.890(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
8.040	84.00	0.000
Total Area Entered = 8.04(Ac.)		

RI (In/Hr)	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	93.4	0.086	0.000	0.086	1.000	
0.086						
						Sum (F) =
0.086						

Area averaged mean soil loss (F) (In/Hr) = 0.086
 Minimum soil loss rate ((In/Hr)) = 0.043
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 FOOTHILL S-Curve

--
 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	2.011
2	0.167	261.045	4.506
3	0.250	391.568	1.151
4	0.333	522.090	0.315
5	0.417	652.613	0.084
6	0.500	783.135	0.035
		Sum = 100.000	Sum= 8.103

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.295	0.086	(0.265)	0.209
2	0.17	1.30	0.295	0.086	(0.265)	0.209
3	0.25	1.10	0.249	0.086	(0.225)	0.164
4	0.33	1.50	0.340	0.086	(0.306)	0.254
5	0.42	1.50	0.340	0.086	(0.306)	0.254
6	0.50	1.80	0.408	0.086	(0.367)	0.322
7	0.58	1.50	0.340	0.086	(0.306)	0.254
8	0.67	1.80	0.408	0.086	(0.367)	0.322
9	0.75	1.80	0.408	0.086	(0.367)	0.322
10	0.83	1.50	0.340	0.086	(0.306)	0.254
11	0.92	1.60	0.363	0.086	(0.327)	0.277
12	1.00	1.80	0.408	0.086	(0.367)	0.322
13	1.08	2.20	0.499	0.086	(0.449)	0.413
14	1.17	2.20	0.499	0.086	(0.449)	0.413
15	1.25	2.20	0.499	0.086	(0.449)	0.413
16	1.33	2.00	0.454	0.086	(0.408)	0.368
17	1.42	2.60	0.590	0.086	(0.531)	0.504
18	1.50	2.70	0.612	0.086	(0.551)	0.527
19	1.58	2.40	0.544	0.086	(0.490)	0.459
20	1.67	2.70	0.612	0.086	(0.551)	0.527
21	1.75	3.30	0.748	0.086	(0.674)	0.663
22	1.83	3.10	0.703	0.086	(0.633)	0.617
23	1.92	2.90	0.658	0.086	(0.592)	0.572
24	2.00	3.00	0.680	0.086	(0.612)	0.595
25	2.08	3.10	0.703	0.086	(0.633)	0.617
26	2.17	4.20	0.953	0.086	(0.857)	0.867
27	2.25	5.00	1.134	0.086	(1.021)	1.048
28	2.33	3.50	0.794	0.086	(0.714)	0.708
29	2.42	6.80	1.542	0.086	(1.388)	1.456
30	2.50	7.30	1.656	0.086	(1.490)	1.570
31	2.58	8.20	1.860	0.086	(1.674)	1.774
32	2.67	5.90	1.338	0.086	(1.204)	1.252
33	2.75	2.00	0.454	0.086	(0.408)	0.368
34	2.83	1.80	0.408	0.086	(0.367)	0.322
35	2.92	1.80	0.408	0.086	(0.367)	0.322
36	3.00	0.60	0.136	0.086	(0.122)	0.050

(Loss Rate Not Used)

Sum = 100.0 Sum = 19.6

Flood volume = Effective rainfall 1.63(In)
times area 8.0(Ac.)/[(In)/(Ft.)] = 1.1(Ac.Ft)
Total soil loss = 0.26(In)
Total soil loss = 0.172(Ac.Ft)
Total rainfall = 1.89(In)
Flood volume = 47645.8 Cubic Feet
Total soil loss = 7512.3 Cubic Feet

Peak flow rate of this hydrograph = 12.881(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0
20.0						
0+ 5	0.0029	0.42	Q	|	|	|
0+10	0.0123	1.36	V Q	|	|	|
0+15	0.0227	1.51	V Q	|	|	|
0+20	0.0334	1.56	|V Q	|	|	|
0+25	0.0467	1.93	|V Q	|	|	|
0+30	0.0616	2.17	| V Q	|	|	|
0+35	0.0779	2.36	| V Q	|	|	|
0+40	0.0935	2.27	| VQ	|	|	|
0+45	0.1110	2.53	| VQ	|	|	|
0+50	0.1278	2.45	| Q	|	|	|
0+55	0.1431	2.21	| QV	|	|	|
1+ 0	0.1591	2.33	| QV	|	|	|
1+ 5	0.1779	2.72	| QV	|	|	|
1+10	0.1998	3.19	| QV	|	|	|
1+15	0.2225	3.30	| Q V	|	|	|
1+20	0.2449	3.25	| Q V	|	|	|
1+25	0.2678	3.32	| Q V|	|	|	|
1+30	0.2949	3.93	| Q V	|	|	|
1+35	0.3227	4.04	| Q |V	|	|	|
1+40	0.3498	3.94	| Q | V	|	|	|
1+45	0.3805	4.46	| Q | V	|	|	|
1+50	0.4153	5.04	| Q V	|	|	|
1+55	0.4491	4.92	| Q| V	|	|	|
2+ 0	0.4819	4.76	| Q| V	|	|	|
2+ 5	0.5153	4.85	| Q| V	|	|	|
2+10	0.5530	5.47	| Q V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+15	0.6011	6.98	|	|	Q	|V	|
|	2+20	0.6521	7.41	|	|	Q	| V	|
|	2+25	0.7050	7.68	|	|	Q	| V	|
|	2+30	0.7805	10.97	|	|		|Q	V |
|	2+35	0.8677	12.67	|	|		| Q	|V
|	2+40	0.9564	12.88	|	|		| Q	| V
|	2+45	1.0189	9.07	|	|	Q	|	| V
|	2+50	1.0498	4.49	|	Q	|	|	| V
|	2+55	1.0714	3.13	|	Q	|	|	|
V|	3+ 0	1.0866	2.21	|	Q	|	|	|
V|	3+ 5	1.0919	0.77	|Q	|	|	|	|
V|	3+10	1.0933	0.20	Q	|	|	|	|
V|	3+15	1.0937	0.05	Q	|	|	|	|
V|	3+20	1.0938	0.02	Q	|	|	|	|
V|	3+25	1.0938	0.00	Q	|	|	|	|
V								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33preb62.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--

Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =

Length along longest watercourse = 1083.00(Ft.)
(Ft.) Length along longest watercourse measured to centroid = 476.00

Length along longest watercourse = 0.205 Mi.
Mi. Length along longest watercourse measured to centroid = 0.090

Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.55 1.09 2.78
 5.49 1.09 5.98

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 8.04 2.55 20.50

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 1.090(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.090(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI (In/Hr)	RI AMC2	Infil. Rate AMC-2 (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	84.0	0.198	0.000	0.198	1.000	
0.198						Sum (F) =
0.198						

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 F O O T H I L L S - C u r v e

--
 U n i t H y d r o g r a p h D a t a

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	24.817
2	0.167	261.045	55.614
3	0.250	391.568	14.211
4	0.333	522.090	3.889
5	0.417	652.613	1.032
6	0.500	783.135	0.438
		Sum = 100.000	Sum= 8.103

The following loss rate calculations reflect use of the minimum
 calculated loss

rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.065	(0.198)	0.059	0.007
2	0.17	0.60	0.078	(0.198)	0.071	0.008
3	0.25	0.60	0.078	(0.198)	0.071	0.008
4	0.33	0.60	0.078	(0.198)	0.071	0.008
5	0.42	0.60	0.078	(0.198)	0.071	0.008
6	0.50	0.70	0.092	(0.198)	0.082	0.009
7	0.58	0.70	0.092	(0.198)	0.082	0.009
8	0.67	0.70	0.092	(0.198)	0.082	0.009
9	0.75	0.70	0.092	(0.198)	0.082	0.009
10	0.83	0.70	0.092	(0.198)	0.082	0.009
11	0.92	0.70	0.092	(0.198)	0.082	0.009
12	1.00	0.80	0.105	(0.198)	0.094	0.010
13	1.08	0.80	0.105	(0.198)	0.094	0.010
14	1.17	0.80	0.105	(0.198)	0.094	0.010
15	1.25	0.80	0.105	(0.198)	0.094	0.010
16	1.33	0.80	0.105	(0.198)	0.094	0.010
17	1.42	0.80	0.105	(0.198)	0.094	0.010
18	1.50	0.80	0.105	(0.198)	0.094	0.010
19	1.58	0.80	0.105	(0.198)	0.094	0.010
20	1.67	0.80	0.105	(0.198)	0.094	0.010
21	1.75	0.80	0.105	(0.198)	0.094	0.010
22	1.83	0.80	0.105	(0.198)	0.094	0.010
23	1.92	0.80	0.105	(0.198)	0.094	0.010
24	2.00	0.90	0.118	(0.198)	0.106	0.012
25	2.08	0.80	0.105	(0.198)	0.094	0.010
26	2.17	0.90	0.118	(0.198)	0.106	0.012
27	2.25	0.90	0.118	(0.198)	0.106	0.012
28	2.33	0.90	0.118	(0.198)	0.106	0.012
29	2.42	0.90	0.118	(0.198)	0.106	0.012
30	2.50	0.90	0.118	(0.198)	0.106	0.012
31	2.58	0.90	0.118	(0.198)	0.106	0.012
32	2.67	0.90	0.118	(0.198)	0.106	0.012
33	2.75	1.00	0.131	(0.198)	0.118	0.013
34	2.83	1.00	0.131	(0.198)	0.118	0.013
35	2.92	1.00	0.131	(0.198)	0.118	0.013
36	3.00	1.00	0.131	(0.198)	0.118	0.013
37	3.08	1.00	0.131	(0.198)	0.118	0.013
38	3.17	1.10	0.144	(0.198)	0.129	0.014
39	3.25	1.10	0.144	(0.198)	0.129	0.014
40	3.33	1.10	0.144	(0.198)	0.129	0.014
41	3.42	1.20	0.157	(0.198)	0.141	0.016
42	3.50	1.30	0.170	(0.198)	0.153	0.017
43	3.58	1.40	0.183	(0.198)	0.165	0.018
44	3.67	1.40	0.183	(0.198)	0.165	0.018
45	3.75	1.50	0.196	(0.198)	0.177	0.020
46	3.83	1.50	0.196	(0.198)	0.177	0.020
47	3.92	1.60	0.209	(0.198)	0.188	0.021
48	4.00	1.60	0.209	(0.198)	0.188	0.021
49	4.08	1.70	0.222	0.198	(0.200)	0.024
50	4.17	1.80	0.235	0.198	(0.212)	0.037
51	4.25	1.90	0.249	0.198	(0.224)	0.050
52	4.33	2.00	0.262	0.198	(0.235)	0.063
53	4.42	2.10	0.275	0.198	(0.247)	0.076
54	4.50	2.10	0.275	0.198	(0.247)	0.076
55	4.58	2.20	0.288	0.198	(0.259)	0.089

56	4.67	2.30	0.301	0.198	(0.271)	0.102
57	4.75	2.40	0.314	0.198	(0.283)	0.116
58	4.83	2.40	0.314	0.198	(0.283)	0.116
59	4.92	2.50	0.327	0.198	(0.294)	0.129
60	5.00	2.60	0.340	0.198	(0.306)	0.142
61	5.08	3.10	0.405	0.198	(0.365)	0.207
62	5.17	3.60	0.471	0.198	(0.424)	0.272
63	5.25	3.90	0.510	0.198	(0.459)	0.312
64	5.33	4.20	0.549	0.198	(0.494)	0.351
65	5.42	4.70	0.615	0.198	(0.553)	0.416
66	5.50	5.60	0.732	0.198	(0.659)	0.534
67	5.58	1.90	0.249	0.198	(0.224)	0.050
68	5.67	0.90	0.118	(0.198)	0.106	0.012
69	5.75	0.60	0.078	(0.198)	0.071	0.008
70	5.83	0.50	0.065	(0.198)	0.059	0.007
71	5.92	0.30	0.039	(0.198)	0.035	0.004
72	6.00	0.20	0.026	(0.198)	0.024	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.8

Flood volume = Effective rainfall 0.31(In)
 times area 8.0(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.78(In)
 Total soil loss = 0.519(Ac.Ft)
 Total rainfall = 1.09(In)
 Flood volume = 9186.9 Cubic Feet
 Total soil loss = 22624.1 Cubic Feet

Peak flow rate of this hydrograph = 3.484(CFS)

6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0001	0.01	Q	|	|	|
0+10	0.0004	0.05	Q	|	|	|
0+15	0.0008	0.06	Q	|	|	|
0+20	0.0012	0.06	Q	|	|	|
0+25	0.0017	0.06	Q	|	|	|
0+30	0.0021	0.07	Q	|	|	|
0+35	0.0026	0.07	Q	|	|	|
0+40	0.0031	0.07	Q	|	|	|

0+45	0.0036	0.07	Q	|	|	|
0+50	0.0042	0.07	Q	|	|	|
0+55	0.0047	0.07	Q	|	|	|
1+ 0	0.0052	0.08	Q	|	|	|
1+ 5	0.0058	0.08	QV	|	|	|
1+10	0.0063	0.08	QV	|	|	|
1+15	0.0069	0.08	QV	|	|	|
1+20	0.0075	0.08	QV	|	|	|
1+25	0.0081	0.08	QV	|	|	|
1+30	0.0087	0.08	QV	|	|	|
1+35	0.0093	0.08	QV	|	|	|
1+40	0.0098	0.08	QV	|	|	|
1+45	0.0104	0.08	QV	|	|	|
1+50	0.0110	0.08	Q V	|	|	|
1+55	0.0116	0.08	Q V	|	|	|
2+ 0	0.0122	0.09	Q V	|	|	|
2+ 5	0.0128	0.09	Q V	|	|	|
2+10	0.0134	0.09	Q V	|	|	|
2+15	0.0141	0.09	Q V	|	|	|
2+20	0.0147	0.09	Q V	|	|	|
2+25	0.0154	0.10	Q V	|	|	|
2+30	0.0161	0.10	Q V	|	|	|
2+35	0.0167	0.10	Q V	|	|	|
2+40	0.0174	0.10	Q V	|	|	|
2+45	0.0180	0.10	Q V	|	|	|
2+50	0.0188	0.10	Q V	|	|	|
2+55	0.0195	0.11	Q V	|	|	|
3+ 0	0.0202	0.11	Q V	|	|	|
3+ 5	0.0209	0.11	Q V	|	|	|
3+10	0.0217	0.11	Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

3+15	0.0225	0.11	Q	V	|	|	|
3+20	0.0233	0.12	Q	V	|	|	|
3+25	0.0241	0.12	Q	V	|	|	|
3+30	0.0250	0.13	Q	V	|	|	|
3+35	0.0259	0.14	Q	V	|	|	|
3+40	0.0269	0.15	Q	V	|	|	|
3+45	0.0280	0.15	Q	V	|	|	|
3+50	0.0290	0.16	Q	V	|	|	|
3+55	0.0302	0.16	Q	V	|	|	|
4+ 0	0.0313	0.17	Q	V	|	|	|
4+ 5	0.0325	0.18	Q	V	|	|	|
4+10	0.0340	0.22	Q	V	|	|	|
4+15	0.0361	0.30	|Q	V	|	|	|
4+20	0.0389	0.41	|Q	V	|	|	|
4+25	0.0424	0.51	| Q	V	|	|	|
4+30	0.0465	0.59	| Q	V	|	|	|
4+35	0.0509	0.64	| Q	V	|	|	|
4+40	0.0559	0.73	| Q	V	|	|	|
4+45	0.0616	0.83	| Q	V	|	|	|
4+50	0.0678	0.91	| Q	V	|	|	|
4+55	0.0744	0.96	| Q	V	|	|	|
5+ 0	0.0816	1.05	| Q	V	|	|	|
5+ 5	0.0903	1.25	| Q	V	|	|	|
5+10	0.1020	1.70	| Q	V	|	|	|
5+15	0.1168	2.15	| Q	V	|	|	|
5+20	0.1341	2.51	| Q	V	|	|	|
5+25	0.1539	2.89	| Q	V	|	|	|
5+30	0.1779	3.48	| Q	V	|	|	V
5+35	0.1995	3.13	| Q	V	|	|	V
5+40	0.2067	1.04	| Q	V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	5+45	0.2090	0.34	|Q	|	|	|
V|	5+50	0.2100	0.14	Q	|	|	|
V|	5+55	0.2105	0.07	Q	|	|	|
V|	6+ 0	0.2107	0.04	Q	|	|	|
V|	6+ 5	0.2109	0.02	Q	|	|	|
V|	6+10	0.2109	0.01	Q	|	|	|
V	6+15	0.2109	0.00	Q			
V	6+20	0.2109	0.00	Q			
V	6+25	0.2109	0.00	Q			
V							

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preb65.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--
Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
(Ft.)
Length along longest watercourse = 0.205 Mi.
Mi. Length along longest watercourse measured to centroid = 0.090

Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.55 1.09 2.78
 5.49 1.09 5.98

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 8.04 2.55 20.50

STORM EVENT (YEAR) = 5.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 1.432(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.432(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI (In/Hr)	RI AMC2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	84.0	0.198	0.000	0.198	1.000	
0.198						Sum (F) =
0.198						

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 F O O T H I L L S - C u r v e

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 U n i t H y d r o g r a p h D a t a

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	24.817
2	0.167	261.045	55.614
3	0.250	391.568	14.211
4	0.333	522.090	3.889
5	0.417	652.613	1.032
6	0.500	783.135	0.438
		Sum = 100.000	Sum= 8.103

The following loss rate calculations reflect use of the minimum
 calculated loss

rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.086	(0.198)	0.077	0.009
2	0.17	0.60	0.103	(0.198)	0.093	0.010
3	0.25	0.60	0.103	(0.198)	0.093	0.010
4	0.33	0.60	0.103	(0.198)	0.093	0.010
5	0.42	0.60	0.103	(0.198)	0.093	0.010
6	0.50	0.70	0.120	(0.198)	0.108	0.012
7	0.58	0.70	0.120	(0.198)	0.108	0.012
8	0.67	0.70	0.120	(0.198)	0.108	0.012
9	0.75	0.70	0.120	(0.198)	0.108	0.012
10	0.83	0.70	0.120	(0.198)	0.108	0.012
11	0.92	0.70	0.120	(0.198)	0.108	0.012
12	1.00	0.80	0.137	(0.198)	0.124	0.014
13	1.08	0.80	0.137	(0.198)	0.124	0.014
14	1.17	0.80	0.137	(0.198)	0.124	0.014
15	1.25	0.80	0.137	(0.198)	0.124	0.014
16	1.33	0.80	0.137	(0.198)	0.124	0.014
17	1.42	0.80	0.137	(0.198)	0.124	0.014
18	1.50	0.80	0.137	(0.198)	0.124	0.014
19	1.58	0.80	0.137	(0.198)	0.124	0.014
20	1.67	0.80	0.137	(0.198)	0.124	0.014
21	1.75	0.80	0.137	(0.198)	0.124	0.014
22	1.83	0.80	0.137	(0.198)	0.124	0.014
23	1.92	0.80	0.137	(0.198)	0.124	0.014
24	2.00	0.90	0.155	(0.198)	0.139	0.015
25	2.08	0.80	0.137	(0.198)	0.124	0.014
26	2.17	0.90	0.155	(0.198)	0.139	0.015
27	2.25	0.90	0.155	(0.198)	0.139	0.015
28	2.33	0.90	0.155	(0.198)	0.139	0.015
29	2.42	0.90	0.155	(0.198)	0.139	0.015
30	2.50	0.90	0.155	(0.198)	0.139	0.015
31	2.58	0.90	0.155	(0.198)	0.139	0.015
32	2.67	0.90	0.155	(0.198)	0.139	0.015
33	2.75	1.00	0.172	(0.198)	0.155	0.017
34	2.83	1.00	0.172	(0.198)	0.155	0.017
35	2.92	1.00	0.172	(0.198)	0.155	0.017
36	3.00	1.00	0.172	(0.198)	0.155	0.017
37	3.08	1.00	0.172	(0.198)	0.155	0.017
38	3.17	1.10	0.189	(0.198)	0.170	0.019
39	3.25	1.10	0.189	(0.198)	0.170	0.019
40	3.33	1.10	0.189	(0.198)	0.170	0.019
41	3.42	1.20	0.206	(0.198)	0.186	0.021
42	3.50	1.30	0.223	0.198	(0.201)	0.025
43	3.58	1.40	0.241	0.198	(0.217)	0.042
44	3.67	1.40	0.241	0.198	(0.217)	0.042
45	3.75	1.50	0.258	0.198	(0.232)	0.059
46	3.83	1.50	0.258	0.198	(0.232)	0.059
47	3.92	1.60	0.275	0.198	(0.247)	0.077
48	4.00	1.60	0.275	0.198	(0.247)	0.077
49	4.08	1.70	0.292	0.198	(0.263)	0.094
50	4.17	1.80	0.309	0.198	(0.278)	0.111
51	4.25	1.90	0.326	0.198	(0.294)	0.128
52	4.33	2.00	0.344	0.198	(0.309)	0.145
53	4.42	2.10	0.361	0.198	(0.325)	0.162
54	4.50	2.10	0.361	0.198	(0.325)	0.162
55	4.58	2.20	0.378	0.198	(0.340)	0.180

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

56	4.67	2.30	0.395	0.198	(0.356)	0.197
57	4.75	2.40	0.412	0.198	(0.371)	0.214
58	4.83	2.40	0.412	0.198	(0.371)	0.214
59	4.92	2.50	0.430	0.198	(0.387)	0.231
60	5.00	2.60	0.447	0.198	(0.402)	0.248
61	5.08	3.10	0.533	0.198	(0.479)	0.334
62	5.17	3.60	0.619	0.198	(0.557)	0.420
63	5.25	3.90	0.670	0.198	(0.603)	0.472
64	5.33	4.20	0.722	0.198	(0.650)	0.523
65	5.42	4.70	0.808	0.198	(0.727)	0.609
66	5.50	5.60	0.962	0.198	(0.866)	0.764
67	5.58	1.90	0.326	0.198	(0.294)	0.128
68	5.67	0.90	0.155	(0.198)	0.139	0.015
69	5.75	0.60	0.103	(0.198)	0.093	0.010
70	5.83	0.50	0.086	(0.198)	0.077	0.009
71	5.92	0.30	0.052	(0.198)	0.046	0.005
72	6.00	0.20	0.034	(0.198)	0.031	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.3

Flood volume = Effective rainfall 0.53(In)
 times area 8.0(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
 Total soil loss = 0.90(In)
 Total soil loss = 0.605(Ac.Ft)
 Total rainfall = 1.43(In)
 Flood volume = 15441.8 Cubic Feet
 Total soil loss = 26349.3 Cubic Feet

Peak flow rate of this hydrograph = 5.082(CFS)

6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0001	0.02	Q	|	|	|
0+10	0.0005	0.06	Q	|	|	|
0+15	0.0011	0.08	Q	|	|	|
0+20	0.0016	0.08	Q	|	|	|
0+25	0.0022	0.08	Q	|	|	|
0+30	0.0028	0.09	Q	|	|	|
0+35	0.0034	0.09	Q	|	|	|
0+40	0.0041	0.10	Q	|	|	|

0+45	0.0048	0.10	Q	|	|	|
0+50	0.0055	0.10	Q	|	|	|
0+55	0.0061	0.10	Q	|	|	|
1+ 0	0.0068	0.10	Q	|	|	|
1+ 5	0.0076	0.11	Q	|	|	|
1+10	0.0083	0.11	Q	|	|	|
1+15	0.0091	0.11	QV	|	|	|
1+20	0.0099	0.11	QV	|	|	|
1+25	0.0106	0.11	QV	|	|	|
1+30	0.0114	0.11	QV	|	|	|
1+35	0.0122	0.11	QV	|	|	|
1+40	0.0129	0.11	QV	|	|	|
1+45	0.0137	0.11	QV	|	|	|
1+50	0.0145	0.11	QV	|	|	|
1+55	0.0152	0.11	QV	|	|	|
2+ 0	0.0160	0.11	QV	|	|	|
2+ 5	0.0169	0.12	QV	|	|	|
2+10	0.0177	0.12	QV	|	|	|
2+15	0.0185	0.12	Q V	|	|	|
2+20	0.0194	0.12	Q V	|	|	|
2+25	0.0202	0.13	Q V	|	|	|
2+30	0.0211	0.13	Q V	|	|	|
2+35	0.0220	0.13	Q V	|	|	|
2+40	0.0228	0.13	Q V	|	|	|
2+45	0.0237	0.13	Q V	|	|	|
2+50	0.0246	0.14	Q V	|	|	|
2+55	0.0256	0.14	Q V	|	|	|
3+ 0	0.0266	0.14	Q V	|	|	|
3+ 5	0.0275	0.14	Q V	|	|	|
3+10	0.0285	0.14	Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

3+15	0.0295	0.15	Q	V	|	|	|
3+20	0.0306	0.15	Q	V	|	|	|
3+25	0.0317	0.16	Q	V	|	|	|
3+30	0.0329	0.17	Q	V	|	|	|
3+35	0.0344	0.23	Q	V	|	|	|
3+40	0.0366	0.31	|Q	V	|	|	|
3+45	0.0391	0.37	|Q	V	|	|	|
3+50	0.0422	0.45	|Q	V	|	|	|
3+55	0.0457	0.51	|	Q	V	|	|
4+ 0	0.0498	0.59	|	Q	V	|	|
4+ 5	0.0543	0.65	|	Q	V	|	|
4+10	0.0595	0.76	|	Q	V	|	|
4+15	0.0657	0.90	|	Q	V	|	|
4+20	0.0728	1.04	|	Q	V	|	|
4+25	0.0809	1.17	|	Q	V|	|	|
4+30	0.0898	1.28	|	Q	V	|	|
4+35	0.0990	1.34	|	Q	|V	|	|
4+40	0.1091	1.46	|	Q	|	V	|
4+45	0.1200	1.59	|	Q	|	V	|
4+50	0.1317	1.70	|	Q	|	V	|
4+55	0.1438	1.76	|	Q	|	V	|
5+ 0	0.1568	1.88	|	Q	|	V	|
5+ 5	0.1716	2.15	|	Q	|	V|	|
5+10	0.1904	2.74	|	Q	|	V	|
5+15	0.2134	3.33	|	|	Q	|	V
5+20	0.2396	3.80	|	|	Q	|	V
5+25	0.2692	4.30	|	|	Q	|	V
5+30	0.3042	5.08	|	|	Q	|	V
5+35	0.3360	4.62	|	|	Q	|	V
5+40	0.3480	1.74	|	Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	5+45	0.3518	0.55	| Q	|	|	|
V|	5+50	0.3532	0.21	Q	|	|	|
V|	5+55	0.3539	0.10	Q	|	|	|
V|	6+ 0	0.3543	0.05	Q	|	|	|
V|	6+ 5	0.3544	0.03	Q	|	|	|
V|	6+10	0.3545	0.01	Q	|	|	|
V|	6+15	0.3545	0.00	Q	|	|	|
V|	6+20	0.3545	0.00	Q	|	|	|
V|	6+25	0.3545	0.00	Q	|	|	|
V							

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33preb610

Unit Hydrograph Analysis

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Study date 02/19/21 File: moval 33preb610.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff

Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Sq. Mi. Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090 Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
2.55	1.09	2.78
5.49	1.09	5.98

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
8.04	2.55	20.50

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.090(In)
Page 1

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

moval 33preb610
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 1.691(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.691(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec.)	(In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
Sum (F) =						0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	2.011
2	0.167	261.045	4.506
3	0.250	391.568	1.151
4	0.333	522.090	0.315
5	0.417	652.613	0.084
6	0.500	783.135	0.035
Sum =		100.000	Sum= 8.103

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	(0.198)	0.091	0.010
2	0.17	0.60	(0.198)	0.110	0.012
3	0.25	0.60	(0.198)	0.110	0.012
4	0.33	0.60	(0.198)	0.110	0.012
5	0.42	0.60	(0.198)	0.110	0.012
6	0.50	0.70	(0.198)	0.128	0.014
7	0.58	0.70	(0.198)	0.128	0.014
8	0.67	0.70	(0.198)	0.128	0.014
9	0.75	0.70	(0.198)	0.128	0.014
10	0.83	0.70	(0.198)	0.128	0.014
11	0.92	0.70	(0.198)	0.128	0.014
12	1.00	0.80	(0.198)	0.146	0.016
13	1.08	0.80	(0.198)	0.146	0.016
14	1.17	0.80	(0.198)	0.146	0.016
15	1.25	0.80	(0.198)	0.146	0.016
16	1.33	0.80	(0.198)	0.146	0.016
17	1.42	0.80	(0.198)	0.146	0.016
18	1.50	0.80	(0.198)	0.146	0.016

moval 33preb610

 Peak flow rate of this hydrograph = 6.291(CFS)

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6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac. Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001		0.02	Q				
0+10	0.0006		0.07	Q				
0+15	0.0013		0.09	Q				
0+20	0.0019		0.10	Q				
0+25	0.0026		0.10	Q				
0+30	0.0033		0.10	Q				
0+35	0.0041		0.11	Q				
0+40	0.0049		0.11	Q				
0+45	0.0056		0.11	Q				
0+50	0.0064		0.12	Q				
0+55	0.0072		0.12	Q				
1+ 0	0.0081		0.12	Q				
1+ 5	0.0089		0.13	Q				
1+10	0.0098		0.13	Q				
1+15	0.0107		0.13	Q				
1+20	0.0116		0.13	Q				
1+25	0.0126		0.13	QV				
1+30	0.0135		0.13	QV				
1+35	0.0144		0.13	QV				
1+40	0.0153		0.13	QV				
1+45	0.0162		0.13	QV				
1+50	0.0171		0.13	QV				
1+55	0.0180		0.13	QV				
2+ 0	0.0189		0.14	QV				
2+ 5	0.0199		0.14	QV				
2+10	0.0208		0.14	QV				
2+15	0.0218		0.15	QV				
2+20	0.0229		0.15	QV				
2+25	0.0239		0.15	Q V				
2+30	0.0249		0.15	Q V				
2+35	0.0259		0.15	Q V				
2+40	0.0269		0.15	Q V				
2+45	0.0280		0.15	Q V				
2+50	0.0291		0.16	Q V				
2+55	0.0302		0.16	Q V				
3+ 0	0.0314		0.16	Q V				
3+ 5	0.0325		0.16	Q V				
3+10	0.0337		0.17	Q V				
3+15	0.0350		0.19	Q V				
3+20	0.0364		0.20	Q V				
3+25	0.0380		0.24	Q V				
3+30	0.0406		0.37	Q V				
3+35	0.0443		0.53	QV				
3+40	0.0487		0.65	Q V				
3+45	0.0537		0.72	Q V				
3+50	0.0594		0.82	Q V				
3+55	0.0655		0.89	Q V				
4+ 0	0.0723		0.99	Q V				
4+ 5	0.0796		1.05	Q V				
4+10	0.0878		1.19	Q V				
4+15	0.0971		1.35	Q V				

			moval 33preb610
4+20	0. 1075	1. 51	Q V
4+25	0. 1191	1. 68	Q V
4+30	0. 1315	1. 80	Q V
4+35	0. 1444	1. 87	Q V
4+40	0. 1583	2. 02	Q V
4+45	0. 1733	2. 17	Q V
4+50	0. 1891	2. 30	Q V
4+55	0. 2054	2. 37	Q V
5+ 0	0. 2227	2. 51	Q V
5+ 5	0. 2421	2. 83	Q V
5+10	0. 2664	3. 52	Q V
5+15	0. 2955	4. 23	Q V
5+20	0. 3284	4. 77	Q V
5+25	0. 3653	5. 36	Q V
5+30	0. 4087	6. 29	Q V
5+35	0. 4483	5. 75	Q V
5+40	0. 4639	2. 27	Q V
5+45	0. 4688	0. 70	Q V
5+50	0. 4706	0. 26	Q V
5+55	0. 4714	0. 13	Q V
6+ 0	0. 4718	0. 06	Q V
6+ 5	0. 4721	0. 03	Q V
6+10	0. 4721	0. 01	Q V
6+15	0. 4721	0. 00	Q V
6+20	0. 4721	0. 00	Q V
6+25	0. 4721	0. 00	Q V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preb6100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

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Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
0.013 Sq. Mi.
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090
Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.55 1.09 2.78
 5.49 1.09 5.98

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 8.04 2.55 20.50

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 2.550(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.550(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI (In/Hr)	RI AMC2 AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	93.4	0.086	0.000	0.086	1.000	
0.086						Sum (F) =
0.086						

Area averaged mean soil loss (F) (In/Hr) = 0.086
 Minimum soil loss rate ((In/Hr)) = 0.043
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 F O O T H I L L S - C u r v e

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 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	24.817
2	0.167	261.045	55.614
3	0.250	391.568	14.211
4	0.333	522.090	3.889
5	0.417	652.613	1.032
6	0.500	783.135	0.438
		Sum = 100.000	Sum= 8.103

The following loss rate calculations reflect use of the minimum
 calculated loss

rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.153	0.086	(0.138)	0.067
2	0.17	0.60	0.184	0.086	(0.165)	0.098
3	0.25	0.60	0.184	0.086	(0.165)	0.098
4	0.33	0.60	0.184	0.086	(0.165)	0.098
5	0.42	0.60	0.184	0.086	(0.165)	0.098
6	0.50	0.70	0.214	0.086	(0.193)	0.128
7	0.58	0.70	0.214	0.086	(0.193)	0.128
8	0.67	0.70	0.214	0.086	(0.193)	0.128
9	0.75	0.70	0.214	0.086	(0.193)	0.128
10	0.83	0.70	0.214	0.086	(0.193)	0.128
11	0.92	0.70	0.214	0.086	(0.193)	0.128
12	1.00	0.80	0.245	0.086	(0.220)	0.159
13	1.08	0.80	0.245	0.086	(0.220)	0.159
14	1.17	0.80	0.245	0.086	(0.220)	0.159
15	1.25	0.80	0.245	0.086	(0.220)	0.159
16	1.33	0.80	0.245	0.086	(0.220)	0.159
17	1.42	0.80	0.245	0.086	(0.220)	0.159
18	1.50	0.80	0.245	0.086	(0.220)	0.159
19	1.58	0.80	0.245	0.086	(0.220)	0.159
20	1.67	0.80	0.245	0.086	(0.220)	0.159
21	1.75	0.80	0.245	0.086	(0.220)	0.159
22	1.83	0.80	0.245	0.086	(0.220)	0.159
23	1.92	0.80	0.245	0.086	(0.220)	0.159
24	2.00	0.90	0.275	0.086	(0.248)	0.190
25	2.08	0.80	0.245	0.086	(0.220)	0.159
26	2.17	0.90	0.275	0.086	(0.248)	0.190
27	2.25	0.90	0.275	0.086	(0.248)	0.190
28	2.33	0.90	0.275	0.086	(0.248)	0.190
29	2.42	0.90	0.275	0.086	(0.248)	0.190
30	2.50	0.90	0.275	0.086	(0.248)	0.190
31	2.58	0.90	0.275	0.086	(0.248)	0.190
32	2.67	0.90	0.275	0.086	(0.248)	0.190
33	2.75	1.00	0.306	0.086	(0.275)	0.220
34	2.83	1.00	0.306	0.086	(0.275)	0.220
35	2.92	1.00	0.306	0.086	(0.275)	0.220
36	3.00	1.00	0.306	0.086	(0.275)	0.220
37	3.08	1.00	0.306	0.086	(0.275)	0.220
38	3.17	1.10	0.337	0.086	(0.303)	0.251
39	3.25	1.10	0.337	0.086	(0.303)	0.251
40	3.33	1.10	0.337	0.086	(0.303)	0.251
41	3.42	1.20	0.367	0.086	(0.330)	0.281
42	3.50	1.30	0.398	0.086	(0.358)	0.312
43	3.58	1.40	0.428	0.086	(0.386)	0.343
44	3.67	1.40	0.428	0.086	(0.386)	0.343
45	3.75	1.50	0.459	0.086	(0.413)	0.373
46	3.83	1.50	0.459	0.086	(0.413)	0.373
47	3.92	1.60	0.490	0.086	(0.441)	0.404
48	4.00	1.60	0.490	0.086	(0.441)	0.404
49	4.08	1.70	0.520	0.086	(0.468)	0.434
50	4.17	1.80	0.551	0.086	(0.496)	0.465
51	4.25	1.90	0.581	0.086	(0.523)	0.496
52	4.33	2.00	0.612	0.086	(0.551)	0.526
53	4.42	2.10	0.643	0.086	(0.578)	0.557
54	4.50	2.10	0.643	0.086	(0.578)	0.557
55	4.58	2.20	0.673	0.086	(0.606)	0.587

56	4.67	2.30	0.704	0.086	(0.633)	0.618
57	4.75	2.40	0.734	0.086	(0.661)	0.649
58	4.83	2.40	0.734	0.086	(0.661)	0.649
59	4.92	2.50	0.765	0.086	(0.688)	0.679
60	5.00	2.60	0.796	0.086	(0.716)	0.710
61	5.08	3.10	0.949	0.086	(0.854)	0.863
62	5.17	3.60	1.102	0.086	(0.991)	1.016
63	5.25	3.90	1.193	0.086	(1.074)	1.108
64	5.33	4.20	1.285	0.086	(1.157)	1.199
65	5.42	4.70	1.438	0.086	(1.294)	1.352
66	5.50	5.60	1.714	0.086	(1.542)	1.628
67	5.58	1.90	0.581	0.086	(0.523)	0.496
68	5.67	0.90	0.275	0.086	(0.248)	0.190
69	5.75	0.60	0.184	0.086	(0.165)	0.098
70	5.83	0.50	0.153	0.086	(0.138)	0.067
71	5.92	0.30	0.092	(0.086)	0.083	0.009
72	6.00	0.20	0.061	(0.086)	0.055	0.006

(Loss Rate Not Used)

Sum = 100.0 Sum = 24.5

Flood volume = Effective rainfall 2.04(In)
times area 8.0(Ac.)/[(In)/(Ft.)] = 1.4(Ac.Ft)
Total soil loss = 0.51(In)
Total soil loss = 0.343(Ac.Ft)
Total rainfall = 2.55(In)
Flood volume = 59478.1 Cubic Feet
Total soil loss = 14942.1 Cubic Feet

Peak flow rate of this hydrograph = 11.219(CFS)

6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0
20.0						
0+ 5	0.0009	0.14	Q			
0+10	0.0044	0.50	Q			
0+15	0.0093	0.72	VQ			
0+20	0.0146	0.77	VQ			
0+25	0.0200	0.79	VQ			
0+30	0.0259	0.85	VQ			
0+35	0.0327	0.99	VQ			
0+40	0.0398	1.03	|VQ			

0+45	0.0470	1.04	|VQ	|	|	|
0+50	0.0541	1.04	|VQ	|	|	|
0+55	0.0613	1.04	|VQ	|	|	|
1+ 0	0.0689	1.10	| Q	|	|	|
1+ 5	0.0774	1.24	| Q	|	|	|
1+10	0.0862	1.28	| Q	|	|	|
1+15	0.0951	1.29	| Q	|	|	|
1+20	0.1039	1.29	| QV	|	|	|
1+25	0.1128	1.29	| QV	|	|	|
1+30	0.1217	1.29	| QV	|	|	|
1+35	0.1306	1.29	| QV	|	|	|
1+40	0.1394	1.29	| Q V	|	|	|
1+45	0.1483	1.29	| Q V	|	|	|
1+50	0.1572	1.29	| Q V	|	|	|
1+55	0.1661	1.29	| Q V	|	|	|
2+ 0	0.1754	1.35	| Q V	|	|	|
2+ 5	0.1852	1.43	| Q V	|	|	|
2+10	0.1947	1.39	| Q V	|	|	|
2+15	0.2051	1.50	| Q V	|	|	|
2+20	0.2156	1.53	| Q V	|	|	|
2+25	0.2261	1.53	| Q V	|	|	|
2+30	0.2367	1.54	| Q V	|	|	|
2+35	0.2473	1.54	| Q V	|	|	|
2+40	0.2579	1.54	| Q V	|	|	|
2+45	0.2689	1.60	| Q V	|	|	|
2+50	0.2809	1.74	Q V			
2+55	0.2931	1.77	Q V			
3+ 0	0.3053	1.78	Q V			
3+ 5	0.3176	1.78	Q V			
3+10	0.3303	1.85	Q V			

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3+15	0.3440	1.98	Q	V			
3+20	0.3579	2.02	Q	V			
3+25	0.3723	2.09	Q	V			
3+30	0.3881	2.29	Q	V			
3+35	0.4055	2.53	Q	V			
3+40	0.4242	2.71	| Q	| V	|	|	
3+45	0.4436	2.82	| Q	| V	|	|	
3+50	0.4641	2.97	| Q	| V	|	|	
3+55	0.4853	3.07	| Q	| V	|	|	
4+ 0	0.5074	3.22	| Q	| V	|	|	
4+ 5	0.5303	3.32	| Q	| V	|	|	
4+10	0.5546	3.53	| Q	| V	|	|	
4+15	0.5806	3.77	| Q	| V	|	|	
4+20	0.6082	4.01	| Q	| V	|	|	
4+25	0.6376	4.26	| Q	| V	|	|	
4+30	0.6682	4.45	| Q	| V	|	|	
4+35	0.6996	4.56	| Q	| V	|	|	
4+40	0.7324	4.77	| Q	| V	|	|	
4+45	0.7669	5.01	| Q	| V	|	|	
4+50	0.8027	5.19	| Q	| V	|	|	
4+55	0.8392	5.30	| Q	| V	|	|	
5+ 0	0.8772	5.51	| Q	| V	|	|	
5+ 5	0.9185	6.00	| Q	| V	|	|	
5+10	0.9670	7.04	|	Q	|	V	
5+15	1.0228	8.11	|	Q	|	V	
5+20	1.0843	8.93	|	Q	|	V	
5+25	1.1520	9.82	|	Q	|	V	
5+30	1.2293	11.22	|	|	Q	|	V
5+35	1.3009	10.40	|	|	Q	|	V
5+40	1.3357	5.06	|	Q	|	|	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	5+45	1.3515	2.29	| Q	|	|	|
V|	5+50	1.3593	1.13	| Q	|	|	|
V|	5+55	1.3634	0.59	|Q	|	|	|
V|	6+ 0	1.3647	0.20	Q	|	|	|
V|	6+ 5	1.3653	0.07	Q	|	|	|
V|	6+10	1.3654	0.02	Q	|	|	|
V|	6+15	1.3654	0.01	Q	|	|	|
V|	6+20	1.3654	0.00	Q	|	|	|
V|	6+25	1.3654	0.00	Q	|	|	|
V							

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33preb242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--

Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
0.013 Sq. Mi.
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090
Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

8.04 1.93 15.52

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 8.04 4.64 37.31

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 1.930(In)
 Area Averaged 100-Year Rainfall = 4.640(In)

Point rain (area averaged) = 1.930(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.930(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI (In/Hr)	RI AMC2	Infil. Rate (In/Hr)	Impervious (Dec.)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
84.0	84.0	0.198	0.000	0.198	1.000	
0.198						Sum (F) =
0.198						

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	2.011
2	0.167	261.045	4.506
3	0.250	391.568	1.151
4	0.333	522.090	0.315
5	0.417	652.613	0.084
6	0.500	783.135	0.035
		Sum = 100.000	Sum= 8.103

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.015	(0.352)	0.014	0.002
2	0.17	0.07	0.015	(0.350)	0.014	0.002
3	0.25	0.07	0.015	(0.349)	0.014	0.002
4	0.33	0.10	0.023	(0.348)	0.021	0.002
5	0.42	0.10	0.023	(0.346)	0.021	0.002
6	0.50	0.10	0.023	(0.345)	0.021	0.002
7	0.58	0.10	0.023	(0.344)	0.021	0.002
8	0.67	0.10	0.023	(0.342)	0.021	0.002
9	0.75	0.10	0.023	(0.341)	0.021	0.002
10	0.83	0.13	0.031	(0.340)	0.028	0.003
11	0.92	0.13	0.031	(0.338)	0.028	0.003
12	1.00	0.13	0.031	(0.337)	0.028	0.003
13	1.08	0.10	0.023	(0.336)	0.021	0.002
14	1.17	0.10	0.023	(0.334)	0.021	0.002
15	1.25	0.10	0.023	(0.333)	0.021	0.002
16	1.33	0.10	0.023	(0.332)	0.021	0.002
17	1.42	0.10	0.023	(0.330)	0.021	0.002
18	1.50	0.10	0.023	(0.329)	0.021	0.002
19	1.58	0.10	0.023	(0.328)	0.021	0.002
20	1.67	0.10	0.023	(0.326)	0.021	0.002
21	1.75	0.10	0.023	(0.325)	0.021	0.002
22	1.83	0.13	0.031	(0.324)	0.028	0.003
23	1.92	0.13	0.031	(0.322)	0.028	0.003
24	2.00	0.13	0.031	(0.321)	0.028	0.003
25	2.08	0.13	0.031	(0.320)	0.028	0.003
26	2.17	0.13	0.031	(0.318)	0.028	0.003
27	2.25	0.13	0.031	(0.317)	0.028	0.003
28	2.33	0.13	0.031	(0.316)	0.028	0.003
29	2.42	0.13	0.031	(0.315)	0.028	0.003
30	2.50	0.13	0.031	(0.313)	0.028	0.003
31	2.58	0.17	0.039	(0.312)	0.035	0.004
32	2.67	0.17	0.039	(0.311)	0.035	0.004
33	2.75	0.17	0.039	(0.310)	0.035	0.004
34	2.83	0.17	0.039	(0.308)	0.035	0.004
35	2.92	0.17	0.039	(0.307)	0.035	0.004
36	3.00	0.17	0.039	(0.306)	0.035	0.004
37	3.08	0.17	0.039	(0.304)	0.035	0.004
38	3.17	0.17	0.039	(0.303)	0.035	0.004
39	3.25	0.17	0.039	(0.302)	0.035	0.004
40	3.33	0.17	0.039	(0.301)	0.035	0.004
41	3.42	0.17	0.039	(0.299)	0.035	0.004
42	3.50	0.17	0.039	(0.298)	0.035	0.004
43	3.58	0.17	0.039	(0.297)	0.035	0.004
44	3.67	0.17	0.039	(0.296)	0.035	0.004
45	3.75	0.17	0.039	(0.294)	0.035	0.004
46	3.83	0.20	0.046	(0.293)	0.042	0.005
47	3.92	0.20	0.046	(0.292)	0.042	0.005
48	4.00	0.20	0.046	(0.291)	0.042	0.005
49	4.08	0.20	0.046	(0.289)	0.042	0.005
50	4.17	0.20	0.046	(0.288)	0.042	0.005
51	4.25	0.20	0.046	(0.287)	0.042	0.005
52	4.33	0.23	0.054	(0.286)	0.049	0.005
53	4.42	0.23	0.054	(0.285)	0.049	0.005
54	4.50	0.23	0.054	(0.283)	0.049	0.005
55	4.58	0.23	0.054	(0.282)	0.049	0.005
56	4.67	0.23	0.054	(0.281)	0.049	0.005

57	4.75	0.23	0.054	(0.280)	0.049	0.005
58	4.83	0.27	0.062	(0.278)	0.056	0.006
59	4.92	0.27	0.062	(0.277)	0.056	0.006
60	5.00	0.27	0.062	(0.276)	0.056	0.006
61	5.08	0.20	0.046	(0.275)	0.042	0.005
62	5.17	0.20	0.046	(0.274)	0.042	0.005
63	5.25	0.20	0.046	(0.272)	0.042	0.005
64	5.33	0.23	0.054	(0.271)	0.049	0.005
65	5.42	0.23	0.054	(0.270)	0.049	0.005
66	5.50	0.23	0.054	(0.269)	0.049	0.005
67	5.58	0.27	0.062	(0.268)	0.056	0.006
68	5.67	0.27	0.062	(0.267)	0.056	0.006
69	5.75	0.27	0.062	(0.265)	0.056	0.006
70	5.83	0.27	0.062	(0.264)	0.056	0.006
71	5.92	0.27	0.062	(0.263)	0.056	0.006
72	6.00	0.27	0.062	(0.262)	0.056	0.006
73	6.08	0.30	0.069	(0.261)	0.063	0.007
74	6.17	0.30	0.069	(0.260)	0.063	0.007
75	6.25	0.30	0.069	(0.258)	0.063	0.007
76	6.33	0.30	0.069	(0.257)	0.063	0.007
77	6.42	0.30	0.069	(0.256)	0.063	0.007
78	6.50	0.30	0.069	(0.255)	0.063	0.007
79	6.58	0.33	0.077	(0.254)	0.069	0.008
80	6.67	0.33	0.077	(0.253)	0.069	0.008
81	6.75	0.33	0.077	(0.252)	0.069	0.008
82	6.83	0.33	0.077	(0.250)	0.069	0.008
83	6.92	0.33	0.077	(0.249)	0.069	0.008
84	7.00	0.33	0.077	(0.248)	0.069	0.008
85	7.08	0.33	0.077	(0.247)	0.069	0.008
86	7.17	0.33	0.077	(0.246)	0.069	0.008
87	7.25	0.33	0.077	(0.245)	0.069	0.008
88	7.33	0.37	0.085	(0.244)	0.076	0.008
89	7.42	0.37	0.085	(0.243)	0.076	0.008
90	7.50	0.37	0.085	(0.241)	0.076	0.008
91	7.58	0.40	0.093	(0.240)	0.083	0.009
92	7.67	0.40	0.093	(0.239)	0.083	0.009
93	7.75	0.40	0.093	(0.238)	0.083	0.009
94	7.83	0.43	0.100	(0.237)	0.090	0.010
95	7.92	0.43	0.100	(0.236)	0.090	0.010
96	8.00	0.43	0.100	(0.235)	0.090	0.010
97	8.08	0.50	0.116	(0.234)	0.104	0.012
98	8.17	0.50	0.116	(0.233)	0.104	0.012
99	8.25	0.50	0.116	(0.232)	0.104	0.012
100	8.33	0.50	0.116	(0.230)	0.104	0.012
101	8.42	0.50	0.116	(0.229)	0.104	0.012
102	8.50	0.50	0.116	(0.228)	0.104	0.012
103	8.58	0.53	0.124	(0.227)	0.111	0.012
104	8.67	0.53	0.124	(0.226)	0.111	0.012
105	8.75	0.53	0.124	(0.225)	0.111	0.012
106	8.83	0.57	0.131	(0.224)	0.118	0.013
107	8.92	0.57	0.131	(0.223)	0.118	0.013
108	9.00	0.57	0.131	(0.222)	0.118	0.013
109	9.08	0.63	0.147	(0.221)	0.132	0.015
110	9.17	0.63	0.147	(0.220)	0.132	0.015
111	9.25	0.63	0.147	(0.219)	0.132	0.015
112	9.33	0.67	0.154	(0.218)	0.139	0.015
113	9.42	0.67	0.154	(0.217)	0.139	0.015
114	9.50	0.67	0.154	(0.216)	0.139	0.015
115	9.58	0.70	0.162	(0.215)	0.146	0.016
116	9.67	0.70	0.162	(0.214)	0.146	0.016

117	9.75	0.70	0.162	(0.213)	0.146	0.016
118	9.83	0.73	0.170	(0.212)	0.153	0.017
119	9.92	0.73	0.170	(0.211)	0.153	0.017
120	10.00	0.73	0.170	(0.210)	0.153	0.017
121	10.08	0.50	0.116	(0.208)	0.104	0.012
122	10.17	0.50	0.116	(0.207)	0.104	0.012
123	10.25	0.50	0.116	(0.206)	0.104	0.012
124	10.33	0.50	0.116	(0.205)	0.104	0.012
125	10.42	0.50	0.116	(0.204)	0.104	0.012
126	10.50	0.50	0.116	(0.203)	0.104	0.012
127	10.58	0.67	0.154	(0.202)	0.139	0.015
128	10.67	0.67	0.154	(0.201)	0.139	0.015
129	10.75	0.67	0.154	(0.201)	0.139	0.015
130	10.83	0.67	0.154	(0.200)	0.139	0.015
131	10.92	0.67	0.154	(0.199)	0.139	0.015
132	11.00	0.67	0.154	(0.198)	0.139	0.015
133	11.08	0.63	0.147	(0.197)	0.132	0.015
134	11.17	0.63	0.147	(0.196)	0.132	0.015
135	11.25	0.63	0.147	(0.195)	0.132	0.015
136	11.33	0.63	0.147	(0.194)	0.132	0.015
137	11.42	0.63	0.147	(0.193)	0.132	0.015
138	11.50	0.63	0.147	(0.192)	0.132	0.015
139	11.58	0.57	0.131	(0.191)	0.118	0.013
140	11.67	0.57	0.131	(0.190)	0.118	0.013
141	11.75	0.57	0.131	(0.189)	0.118	0.013
142	11.83	0.60	0.139	(0.188)	0.125	0.014
143	11.92	0.60	0.139	(0.187)	0.125	0.014
144	12.00	0.60	0.139	(0.186)	0.125	0.014
145	12.08	0.83	0.193	(0.185)	0.174	0.019
146	12.17	0.83	0.193	(0.184)	0.174	0.019
147	12.25	0.83	0.193	(0.183)	0.174	0.019
148	12.33	0.87	0.201	(0.182)	0.181	0.020
149	12.42	0.87	0.201	(0.182)	0.181	0.020
150	12.50	0.87	0.201	0.181	(0.181)	0.020
151	12.58	0.93	0.216	0.180	(0.195)	0.036
152	12.67	0.93	0.216	0.179	(0.195)	0.037
153	12.75	0.93	0.216	0.178	(0.195)	0.038
154	12.83	0.97	0.224	0.177	(0.201)	0.047
155	12.92	0.97	0.224	0.176	(0.201)	0.048
156	13.00	0.97	0.224	0.175	(0.201)	0.049
157	13.08	1.13	0.262	0.174	(0.236)	0.088
158	13.17	1.13	0.262	0.173	(0.236)	0.089
159	13.25	1.13	0.262	0.173	(0.236)	0.090
160	13.33	1.13	0.262	0.172	(0.236)	0.091
161	13.42	1.13	0.262	0.171	(0.236)	0.092
162	13.50	1.13	0.262	0.170	(0.236)	0.093
163	13.58	0.77	0.178	(0.169)	0.160	0.018
164	13.67	0.77	0.178	(0.168)	0.160	0.018
165	13.75	0.77	0.178	(0.167)	0.160	0.018
166	13.83	0.77	0.178	(0.166)	0.160	0.018
167	13.92	0.77	0.178	(0.166)	0.160	0.018
168	14.00	0.77	0.178	(0.165)	0.160	0.018
169	14.08	0.90	0.208	0.164	(0.188)	0.044
170	14.17	0.90	0.208	0.163	(0.188)	0.045
171	14.25	0.90	0.208	0.162	(0.188)	0.046
172	14.33	0.87	0.201	0.161	(0.181)	0.039
173	14.42	0.87	0.201	0.161	(0.181)	0.040
174	14.50	0.87	0.201	0.160	(0.181)	0.041
175	14.58	0.87	0.201	0.159	(0.181)	0.042
176	14.67	0.87	0.201	0.158	(0.181)	0.043

177	14.75	0.87	0.201	0.157	(0.181)	0.043
178	14.83	0.83	0.193	0.157	(0.174)	0.036
179	14.92	0.83	0.193	0.156	(0.174)	0.037
180	15.00	0.83	0.193	0.155	(0.174)	0.038
181	15.08	0.80	0.185	0.154	(0.167)	0.031
182	15.17	0.80	0.185	0.153	(0.167)	0.032
183	15.25	0.80	0.185	0.153	(0.167)	0.033
184	15.33	0.77	0.178	0.152	(0.160)	0.026
185	15.42	0.77	0.178	0.151	(0.160)	0.027
186	15.50	0.77	0.178	0.150	(0.160)	0.027
187	15.58	0.63	0.147	(0.149)	0.132	0.015
188	15.67	0.63	0.147	(0.149)	0.132	0.015
189	15.75	0.63	0.147	(0.148)	0.132	0.015
190	15.83	0.63	0.147	(0.147)	0.132	0.015
191	15.92	0.63	0.147	(0.146)	0.132	0.015
192	16.00	0.63	0.147	(0.146)	0.132	0.015
193	16.08	0.13	0.031	(0.145)	0.028	0.003
194	16.17	0.13	0.031	(0.144)	0.028	0.003
195	16.25	0.13	0.031	(0.143)	0.028	0.003
196	16.33	0.13	0.031	(0.143)	0.028	0.003
197	16.42	0.13	0.031	(0.142)	0.028	0.003
198	16.50	0.13	0.031	(0.141)	0.028	0.003
199	16.58	0.10	0.023	(0.141)	0.021	0.002
200	16.67	0.10	0.023	(0.140)	0.021	0.002
201	16.75	0.10	0.023	(0.139)	0.021	0.002
202	16.83	0.10	0.023	(0.138)	0.021	0.002
203	16.92	0.10	0.023	(0.138)	0.021	0.002
204	17.00	0.10	0.023	(0.137)	0.021	0.002
205	17.08	0.17	0.039	(0.136)	0.035	0.004
206	17.17	0.17	0.039	(0.136)	0.035	0.004
207	17.25	0.17	0.039	(0.135)	0.035	0.004
208	17.33	0.17	0.039	(0.134)	0.035	0.004
209	17.42	0.17	0.039	(0.134)	0.035	0.004
210	17.50	0.17	0.039	(0.133)	0.035	0.004
211	17.58	0.17	0.039	(0.132)	0.035	0.004
212	17.67	0.17	0.039	(0.132)	0.035	0.004
213	17.75	0.17	0.039	(0.131)	0.035	0.004
214	17.83	0.13	0.031	(0.130)	0.028	0.003
215	17.92	0.13	0.031	(0.130)	0.028	0.003
216	18.00	0.13	0.031	(0.129)	0.028	0.003
217	18.08	0.13	0.031	(0.128)	0.028	0.003
218	18.17	0.13	0.031	(0.128)	0.028	0.003
219	18.25	0.13	0.031	(0.127)	0.028	0.003
220	18.33	0.13	0.031	(0.127)	0.028	0.003
221	18.42	0.13	0.031	(0.126)	0.028	0.003
222	18.50	0.13	0.031	(0.125)	0.028	0.003
223	18.58	0.10	0.023	(0.125)	0.021	0.002
224	18.67	0.10	0.023	(0.124)	0.021	0.002
225	18.75	0.10	0.023	(0.124)	0.021	0.002
226	18.83	0.07	0.015	(0.123)	0.014	0.002
227	18.92	0.07	0.015	(0.122)	0.014	0.002
228	19.00	0.07	0.015	(0.122)	0.014	0.002
229	19.08	0.10	0.023	(0.121)	0.021	0.002
230	19.17	0.10	0.023	(0.121)	0.021	0.002
231	19.25	0.10	0.023	(0.120)	0.021	0.002
232	19.33	0.13	0.031	(0.119)	0.028	0.003
233	19.42	0.13	0.031	(0.119)	0.028	0.003
234	19.50	0.13	0.031	(0.118)	0.028	0.003
235	19.58	0.10	0.023	(0.118)	0.021	0.002
236	19.67	0.10	0.023	(0.117)	0.021	0.002

Total soil loss = 48677.0 Cubic Feet

Peak flow rate of this hydrograph = 0.743(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0000		0.00	Q			
0+10	0.0001		0.01	Q			
0+15	0.0002		0.01	Q			
0+20	0.0003		0.01	Q			
0+25	0.0004		0.02	Q			
0+30	0.0005		0.02	Q			
0+35	0.0006		0.02	Q			
0+40	0.0008		0.02	Q			
0+45	0.0009		0.02	Q			
0+50	0.0010		0.02	Q			
0+55	0.0012		0.02	Q			
1+ 0	0.0014		0.02	Q			
1+ 5	0.0015		0.02	Q			
1+10	0.0017		0.02	Q			
1+15	0.0018		0.02	Q			
1+20	0.0019		0.02	Q			
1+25	0.0021		0.02	Q			
1+30	0.0022		0.02	Q			
1+35	0.0023		0.02	Q			
1+40	0.0025		0.02	Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+45	0.0026	0.02	Q	|	|	|
1+50	0.0027	0.02	Q	|	|	|
1+55	0.0029	0.02	Q	|	|	|
2+ 0	0.0031	0.02	Q	|	|	|
2+ 5	0.0032	0.02	Q	|	|	|
2+10	0.0034	0.03	Q	|	|	|
2+15	0.0036	0.03	Q	|	|	|
2+20	0.0037	0.03	Q	|	|	|
2+25	0.0039	0.03	Q	|	|	|
2+30	0.0041	0.03	Q	|	|	|
2+35	0.0043	0.03	Q	|	|	|
2+40	0.0045	0.03	QV	|	|	|
2+45	0.0047	0.03	QV	|	|	|
2+50	0.0049	0.03	QV	|	|	|
2+55	0.0051	0.03	QV	|	|	|
3+ 0	0.0053	0.03	QV	|	|	|
3+ 5	0.0056	0.03	QV	|	|	|
3+10	0.0058	0.03	QV	|	|	|
3+15	0.0060	0.03	QV	|	|	|
3+20	0.0062	0.03	QV	|	|	|
3+25	0.0064	0.03	QV	|	|	|
3+30	0.0066	0.03	QV	|	|	|
3+35	0.0068	0.03	QV	|	|	|
3+40	0.0071	0.03	QV	|	|	|
3+45	0.0073	0.03	QV	|	|	|
3+50	0.0075	0.03	QV	|	|	|
3+55	0.0078	0.04	QV	|	|	|
4+ 0	0.0080	0.04	QV	|	|	|
4+ 5	0.0083	0.04	QV	|	|	|
4+10	0.0085	0.04	QV	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+15	0.0088	0.04	Q	V	|	|	|
4+20	0.0091	0.04	Q	V	|	|	|
4+25	0.0094	0.04	Q	V	|	|	|
4+30	0.0096	0.04	Q	V	|	|	|
4+35	0.0100	0.04	Q	V	|	|	|
4+40	0.0103	0.04	Q	V	|	|	|
4+45	0.0106	0.04	Q	V	|	|	|
4+50	0.0109	0.05	Q	V	|	|	|
4+55	0.0112	0.05	Q	V	|	|	|
5+ 0	0.0115	0.05	Q	V	|	|	|
5+ 5	0.0119	0.05	Q	V	|	|	|
5+10	0.0121	0.04	Q	V	|	|	|
5+15	0.0124	0.04	Q	V	|	|	|
5+20	0.0127	0.04	Q	V	|	|	|
5+25	0.0130	0.04	Q	V	|	|	|
5+30	0.0133	0.04	Q	V	|	|	|
5+35	0.0136	0.05	Q	V	|	|	|
5+40	0.0139	0.05	Q	V	|	|	|
5+45	0.0143	0.05	Q	V	|	|	|
5+50	0.0146	0.05	Q	V	|	|	|
5+55	0.0149	0.05	Q	V	|	|	|
6+ 0	0.0153	0.05	Q	V	|	|	|
6+ 5	0.0156	0.05	Q	V	|	|	|
6+10	0.0160	0.06	Q	V	|	|	|
6+15	0.0164	0.06	Q	V	|	|	|
6+20	0.0168	0.06	Q	V	|	|	|
6+25	0.0172	0.06	Q	V	|	|	|
6+30	0.0176	0.06	Q	V	|	|	|
6+35	0.0180	0.06	Q	V	|	|	|
6+40	0.0184	0.06	Q	V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

6+45	0.0188	0.06	Q	V	|	|	|
6+50	0.0193	0.06	Q	V	|	|	|
6+55	0.0197	0.06	Q	V	|	|	|
7+ 0	0.0201	0.06	Q	V	|	|	|
7+ 5	0.0206	0.06	Q	V	|	|	|
7+10	0.0210	0.06	Q	V	|	|	|
7+15	0.0214	0.06	Q	V	|	|	|
7+20	0.0219	0.06	Q	V	|	|	|
7+25	0.0223	0.07	Q	V	|	|	|
7+30	0.0228	0.07	Q	V	|	|	|
7+35	0.0233	0.07	Q	V	|	|	|
7+40	0.0238	0.07	Q	V	|	|	|
7+45	0.0243	0.07	Q	V	|	|	|
7+50	0.0248	0.08	Q	V	|	|	|
7+55	0.0254	0.08	Q	V	|	|	|
8+ 0	0.0259	0.08	Q	V	|	|	|
8+ 5	0.0265	0.08	Q	V	|	|	|
8+10	0.0271	0.09	Q	V	|	|	|
8+15	0.0278	0.09	Q	V	|	|	|
8+20	0.0284	0.09	Q	V	|	|	|
8+25	0.0291	0.09	Q	V	|	|	|
8+30	0.0297	0.09	Q	V	|	|	|
8+35	0.0304	0.10	Q	V	|	|	|
8+40	0.0311	0.10	Q	V	|	|	|
8+45	0.0318	0.10	Q	V	|	|	|
8+50	0.0325	0.10	Q	V	|	|	|
8+55	0.0332	0.11	Q	V	|	|	|
9+ 0	0.0339	0.11	Q	V	|	|	|
9+ 5	0.0347	0.11	Q	V	|	|	|
9+10	0.0355	0.12	Q	V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

9+15	0.0363	0.12	Q	V	|	|	|
9+20	0.0371	0.12	Q	V	|	|	|
9+25	0.0380	0.12	Q	V	|	|	|
9+30	0.0388	0.12	Q	V	|	|	|
9+35	0.0397	0.13	Q	V	|	|	|
9+40	0.0406	0.13	Q	V	|	|	|
9+45	0.0415	0.13	Q	V	|	|	|
9+50	0.0424	0.13	Q	V	|	|	|
9+55	0.0433	0.14	Q	V	|	|	|
10+ 0	0.0443	0.14	Q	V	|	|	|
10+ 5	0.0452	0.13	Q	V	|	|	|
10+10	0.0459	0.10	Q	V	|	|	|
10+15	0.0465	0.10	Q	V	|	|	|
10+20	0.0472	0.09	Q	V	|	|	|
10+25	0.0478	0.09	Q	V	|	|	|
10+30	0.0485	0.09	Q	|V	|	|	|
10+35	0.0492	0.10	Q	|V	|	|	|
10+40	0.0500	0.12	Q	|V	|	|	|
10+45	0.0508	0.12	Q	|V	|	|	|
10+50	0.0517	0.12	Q	|V	|	|	|
10+55	0.0526	0.13	Q	|V	|	|	|
11+ 0	0.0534	0.13	Q	| V	|	|	|
11+ 5	0.0543	0.12	Q	| V	|	|	|
11+10	0.0551	0.12	Q	| V	|	|	|
11+15	0.0559	0.12	Q	| V	|	|	|
11+20	0.0567	0.12	Q	| V	|	|	|
11+25	0.0576	0.12	Q	| V	|	|	|
11+30	0.0584	0.12	Q	| V	|	|	|
11+35	0.0592	0.12	Q	| V	|	|	|
11+40	0.0599	0.11	Q	| V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+45	0.0607	0.11	Q	|	V	|	|
11+50	0.0614	0.11	Q	|	V	|	|
11+55	0.0622	0.11	Q	|	V	|	|
12+ 0	0.0630	0.11	Q	|	V	|	|
12+ 5	0.0638	0.12	Q	|	V	|	|
12+10	0.0648	0.15	Q	|	V	|	|
12+15	0.0659	0.15	Q	|	V	|	|
12+20	0.0670	0.16	Q	|	V	|	|
12+25	0.0681	0.16	Q	|	V	|	|
12+30	0.0692	0.16	Q	|	V	|	|
12+35	0.0706	0.20	Q	|	V	|	|
12+40	0.0724	0.27	|Q	|	V	|	|
12+45	0.0745	0.30	|Q	|	V	|	|
12+50	0.0767	0.32	|Q	|	V	|	|
12+55	0.0792	0.37	|Q	|	V	|	|
13+ 0	0.0819	0.38	|Q	|	V	|	|
13+ 5	0.0851	0.47	|Q	|	V	|	|
13+10	0.0896	0.65	| Q	|	V	|	|
13+15	0.0945	0.70	| Q	|	|V	|	|
13+20	0.0994	0.72	| Q	|	| V	|	|
13+25	0.1045	0.73	| Q	|	| V	|	|
13+30	0.1096	0.74	| Q	|	| V	|	|
13+35	0.1137	0.60	| Q	|	| V	|	|
13+40	0.1155	0.26	|Q	|	| V	|	|
13+45	0.1168	0.18	Q	|	| V	|	|
13+50	0.1178	0.15	Q	|	| V	|	|
13+55	0.1188	0.15	Q	|	| V	|	|
14+ 0	0.1198	0.14	Q	|	| V	|	|
14+ 5	0.1212	0.20	Q	|	| V	|	|
14+10	0.1234	0.32	|Q	|	| V	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

14+15	0.1258	0.36	|Q	|	|	V	|
14+20	0.1283	0.36	|Q	|	|	V	|
14+25	0.1305	0.33	|Q	|	|	V	|
14+30	0.1328	0.33	|Q	|	|	V	|
14+35	0.1351	0.33	|Q	|	|	V	|
14+40	0.1374	0.34	|Q	|	|	|V	|
14+45	0.1398	0.34	|Q	|	|	|V	|
14+50	0.1421	0.34	|Q	|	|	|	V
14+55	0.1442	0.31	|Q	|	|	|	V
15+ 0	0.1463	0.31	|Q	|	|	|	V
15+ 5	0.1484	0.29	|Q	|	|	|	V
15+10	0.1502	0.26	|Q	|	|	|	V
15+15	0.1520	0.26	|Q	|	|	|	V
15+20	0.1537	0.25	|Q	|	|	|	V
15+25	0.1552	0.22	Q	|	|	|	V
15+30	0.1567	0.22	Q	|	|	|	V
15+35	0.1581	0.20	Q	|	|	|	V
15+40	0.1590	0.14	Q	|	|	|	V
15+45	0.1599	0.12	Q	|	|	|	V
15+50	0.1607	0.12	Q	|	|	|	V
15+55	0.1615	0.12	Q	|	|	|	V
16+ 0	0.1624	0.12	Q	|	|	|	V
16+ 5	0.1630	0.10	Q	|	|	|	V
16+10	0.1633	0.04	Q	|	|	|	V
16+15	0.1635	0.03	Q	|	|	|	V
16+20	0.1637	0.03	Q	|	|	|	V
16+25	0.1639	0.03	Q	|	|	|	V
16+30	0.1641	0.03	Q	|	|	|	V
16+35	0.1642	0.02	Q	|	|	|	V
16+40	0.1644	0.02	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

16+45	0.1645	0.02	Q	|	|	|	V
16+50	0.1646	0.02	Q	|	|	|	V
16+55	0.1647	0.02	Q	|	|	|	V
17+ 0	0.1649	0.02	Q	|	|	|	V
17+ 5	0.1650	0.02	Q	|	|	|	V
17+10	0.1652	0.03	Q	|	|	|	V
17+15	0.1654	0.03	Q	|	|	|	V
17+20	0.1656	0.03	Q	|	|	|	V
17+25	0.1659	0.03	Q	|	|	|	V
17+30	0.1661	0.03	Q	|	|	|	V
17+35	0.1663	0.03	Q	|	|	|	V
17+40	0.1665	0.03	Q	|	|	|	V
17+45	0.1667	0.03	Q	|	|	|	V
17+50	0.1669	0.03	Q	|	|	|	V
17+55	0.1671	0.03	Q	|	|	|	V
18+ 0	0.1673	0.03	Q	|	|	|	V
18+ 5	0.1675	0.03	Q	|	|	|	V
18+10	0.1676	0.03	Q	|	|	|	V
18+15	0.1678	0.03	Q	|	|	|	V
18+20	0.1680	0.03	Q	|	|	|	V
18+25	0.1681	0.03	Q	|	|	|	V
18+30	0.1683	0.03	Q	|	|	|	V
18+35	0.1685	0.02	Q	|	|	|	V
18+40	0.1686	0.02	Q	|	|	|	V
18+45	0.1688	0.02	Q	|	|	|	V
18+50	0.1689	0.02	Q	|	|	|	V
18+55	0.1690	0.01	Q	|	|	|	V
19+ 0	0.1691	0.01	Q	|	|	|	V
19+ 5	0.1692	0.01	Q	|	|	|	V
19+10	0.1693	0.02	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	19+15	0.1694	0.02	Q	|	|	|	V
|	19+20	0.1695	0.02	Q	|	|	|	V
|	19+25	0.1697	0.02	Q	|	|	|	V
|	19+30	0.1699	0.02	Q	|	|	|	V
|	19+35	0.1700	0.02	Q	|	|	|	V
|	19+40	0.1702	0.02	Q	|	|	|	V
|	19+45	0.1703	0.02	Q	|	|	|	V
|	19+50	0.1704	0.02	Q	|	|	|	V
|	19+55	0.1705	0.01	Q	|	|	|	V
|	20+ 0	0.1706	0.01	Q	|	|	|	V
|	20+ 5	0.1707	0.01	Q	|	|	|	V
|	20+10	0.1708	0.02	Q	|	|	|	V
|	20+15	0.1710	0.02	Q	|	|	|	V
|	20+20	0.1711	0.02	Q	|	|	|	V
|	20+25	0.1712	0.02	Q	|	|	|	V
|	20+30	0.1713	0.02	Q	|	|	|	
V|	20+35	0.1715	0.02	Q	|	|	|	
V|	20+40	0.1716	0.02	Q	|	|	|	
V|	20+45	0.1717	0.02	Q	|	|	|	
V|	20+50	0.1718	0.02	Q	|	|	|	
V|	20+55	0.1719	0.01	Q	|	|	|	
V|	21+ 0	0.1720	0.01	Q	|	|	|	
V|	21+ 5	0.1721	0.01	Q	|	|	|	
V|	21+10	0.1722	0.02	Q	|	|	|	
V|	21+15	0.1724	0.02	Q	|	|	|	
V|	21+20	0.1725	0.02	Q	|	|	|	
V|	21+25	0.1726	0.01	Q	|	|	|	
V|	21+30	0.1727	0.01	Q	|	|	|	
V|	21+35	0.1728	0.01	Q	|	|	|	
V|	21+40	0.1729	0.02	Q	|	|	|	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+45	0.1730	0.02	Q	|	|	|
V|	21+50	0.1731	0.02	Q	|	|	|
V|	21+55	0.1732	0.01	Q	|	|	|
V|	22+ 0	0.1733	0.01	Q	|	|	|
V|	22+ 5	0.1734	0.01	Q	|	|	|
V|	22+10	0.1735	0.02	Q	|	|	|
V|	22+15	0.1737	0.02	Q	|	|	|
V|	22+20	0.1738	0.02	Q	|	|	|
V|	22+25	0.1739	0.01	Q	|	|	|
V|	22+30	0.1740	0.01	Q	|	|	|
V|	22+35	0.1741	0.01	Q	|	|	|
V|	22+40	0.1741	0.01	Q	|	|	|
V|	22+45	0.1742	0.01	Q	|	|	|
V|	22+50	0.1743	0.01	Q	|	|	|
V|	22+55	0.1744	0.01	Q	|	|	|
V|	23+ 0	0.1745	0.01	Q	|	|	|
V|	23+ 5	0.1746	0.01	Q	|	|	|
V|	23+10	0.1747	0.01	Q	|	|	|
V|	23+15	0.1747	0.01	Q	|	|	|
V|	23+20	0.1748	0.01	Q	|	|	|
V|	23+25	0.1749	0.01	Q	|	|	|
V|	23+30	0.1750	0.01	Q	|	|	|
V|	23+35	0.1751	0.01	Q	|	|	|
V|	23+40	0.1752	0.01	Q	|	|	|
V|	23+45	0.1753	0.01	Q	|	|	|
V|	23+50	0.1753	0.01	Q	|	|	|
V|	23+55	0.1754	0.01	Q	|	|	|
V|	24+ 0	0.1755	0.01	Q	|	|	|
V|	24+ 5	0.1756	0.01	Q	|	|	|
V|	24+10	0.1756	0.00	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V	24+15	0.1756	0.00	Q			
V	24+20	0.1756	0.00	Q			
V	24+25	0.1756	0.00	Q			

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preb245.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--
Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
Length along longest watercourse = 0.205 Mi.
Mi. Length along longest watercourse measured to centroid = 0.090

Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.021	(0.352)	0.018	0.002
2	0.17	0.07	0.021	(0.350)	0.018	0.002
3	0.25	0.07	0.021	(0.349)	0.018	0.002
4	0.33	0.10	0.031	(0.348)	0.028	0.003
5	0.42	0.10	0.031	(0.346)	0.028	0.003
6	0.50	0.10	0.031	(0.345)	0.028	0.003
7	0.58	0.10	0.031	(0.344)	0.028	0.003
8	0.67	0.10	0.031	(0.342)	0.028	0.003
9	0.75	0.10	0.031	(0.341)	0.028	0.003
10	0.83	0.13	0.041	(0.340)	0.037	0.004
11	0.92	0.13	0.041	(0.338)	0.037	0.004
12	1.00	0.13	0.041	(0.337)	0.037	0.004
13	1.08	0.10	0.031	(0.336)	0.028	0.003
14	1.17	0.10	0.031	(0.334)	0.028	0.003
15	1.25	0.10	0.031	(0.333)	0.028	0.003
16	1.33	0.10	0.031	(0.332)	0.028	0.003
17	1.42	0.10	0.031	(0.330)	0.028	0.003
18	1.50	0.10	0.031	(0.329)	0.028	0.003
19	1.58	0.10	0.031	(0.328)	0.028	0.003
20	1.67	0.10	0.031	(0.326)	0.028	0.003
21	1.75	0.10	0.031	(0.325)	0.028	0.003
22	1.83	0.13	0.041	(0.324)	0.037	0.004
23	1.92	0.13	0.041	(0.322)	0.037	0.004
24	2.00	0.13	0.041	(0.321)	0.037	0.004
25	2.08	0.13	0.041	(0.320)	0.037	0.004
26	2.17	0.13	0.041	(0.318)	0.037	0.004
27	2.25	0.13	0.041	(0.317)	0.037	0.004
28	2.33	0.13	0.041	(0.316)	0.037	0.004
29	2.42	0.13	0.041	(0.315)	0.037	0.004
30	2.50	0.13	0.041	(0.313)	0.037	0.004
31	2.58	0.17	0.051	(0.312)	0.046	0.005
32	2.67	0.17	0.051	(0.311)	0.046	0.005
33	2.75	0.17	0.051	(0.310)	0.046	0.005
34	2.83	0.17	0.051	(0.308)	0.046	0.005
35	2.92	0.17	0.051	(0.307)	0.046	0.005
36	3.00	0.17	0.051	(0.306)	0.046	0.005
37	3.08	0.17	0.051	(0.304)	0.046	0.005
38	3.17	0.17	0.051	(0.303)	0.046	0.005
39	3.25	0.17	0.051	(0.302)	0.046	0.005
40	3.33	0.17	0.051	(0.301)	0.046	0.005
41	3.42	0.17	0.051	(0.299)	0.046	0.005
42	3.50	0.17	0.051	(0.298)	0.046	0.005
43	3.58	0.17	0.051	(0.297)	0.046	0.005
44	3.67	0.17	0.051	(0.296)	0.046	0.005
45	3.75	0.17	0.051	(0.294)	0.046	0.005
46	3.83	0.20	0.062	(0.293)	0.055	0.006
47	3.92	0.20	0.062	(0.292)	0.055	0.006
48	4.00	0.20	0.062	(0.291)	0.055	0.006
49	4.08	0.20	0.062	(0.289)	0.055	0.006
50	4.17	0.20	0.062	(0.288)	0.055	0.006
51	4.25	0.20	0.062	(0.287)	0.055	0.006
52	4.33	0.23	0.072	(0.286)	0.065	0.007
53	4.42	0.23	0.072	(0.285)	0.065	0.007
54	4.50	0.23	0.072	(0.283)	0.065	0.007
55	4.58	0.23	0.072	(0.282)	0.065	0.007
56	4.67	0.23	0.072	(0.281)	0.065	0.007

57	4.75	0.23	0.072	(0.280)	0.065	0.007
58	4.83	0.27	0.082	(0.278)	0.074	0.008
59	4.92	0.27	0.082	(0.277)	0.074	0.008
60	5.00	0.27	0.082	(0.276)	0.074	0.008
61	5.08	0.20	0.062	(0.275)	0.055	0.006
62	5.17	0.20	0.062	(0.274)	0.055	0.006
63	5.25	0.20	0.062	(0.272)	0.055	0.006
64	5.33	0.23	0.072	(0.271)	0.065	0.007
65	5.42	0.23	0.072	(0.270)	0.065	0.007
66	5.50	0.23	0.072	(0.269)	0.065	0.007
67	5.58	0.27	0.082	(0.268)	0.074	0.008
68	5.67	0.27	0.082	(0.267)	0.074	0.008
69	5.75	0.27	0.082	(0.265)	0.074	0.008
70	5.83	0.27	0.082	(0.264)	0.074	0.008
71	5.92	0.27	0.082	(0.263)	0.074	0.008
72	6.00	0.27	0.082	(0.262)	0.074	0.008
73	6.08	0.30	0.092	(0.261)	0.083	0.009
74	6.17	0.30	0.092	(0.260)	0.083	0.009
75	6.25	0.30	0.092	(0.258)	0.083	0.009
76	6.33	0.30	0.092	(0.257)	0.083	0.009
77	6.42	0.30	0.092	(0.256)	0.083	0.009
78	6.50	0.30	0.092	(0.255)	0.083	0.009
79	6.58	0.33	0.103	(0.254)	0.092	0.010
80	6.67	0.33	0.103	(0.253)	0.092	0.010
81	6.75	0.33	0.103	(0.252)	0.092	0.010
82	6.83	0.33	0.103	(0.250)	0.092	0.010
83	6.92	0.33	0.103	(0.249)	0.092	0.010
84	7.00	0.33	0.103	(0.248)	0.092	0.010
85	7.08	0.33	0.103	(0.247)	0.092	0.010
86	7.17	0.33	0.103	(0.246)	0.092	0.010
87	7.25	0.33	0.103	(0.245)	0.092	0.010
88	7.33	0.37	0.113	(0.244)	0.102	0.011
89	7.42	0.37	0.113	(0.243)	0.102	0.011
90	7.50	0.37	0.113	(0.241)	0.102	0.011
91	7.58	0.40	0.123	(0.240)	0.111	0.012
92	7.67	0.40	0.123	(0.239)	0.111	0.012
93	7.75	0.40	0.123	(0.238)	0.111	0.012
94	7.83	0.43	0.133	(0.237)	0.120	0.013
95	7.92	0.43	0.133	(0.236)	0.120	0.013
96	8.00	0.43	0.133	(0.235)	0.120	0.013
97	8.08	0.50	0.154	(0.234)	0.138	0.015
98	8.17	0.50	0.154	(0.233)	0.138	0.015
99	8.25	0.50	0.154	(0.232)	0.138	0.015
100	8.33	0.50	0.154	(0.230)	0.138	0.015
101	8.42	0.50	0.154	(0.229)	0.138	0.015
102	8.50	0.50	0.154	(0.228)	0.138	0.015
103	8.58	0.53	0.164	(0.227)	0.148	0.016
104	8.67	0.53	0.164	(0.226)	0.148	0.016
105	8.75	0.53	0.164	(0.225)	0.148	0.016
106	8.83	0.57	0.174	(0.224)	0.157	0.017
107	8.92	0.57	0.174	(0.223)	0.157	0.017
108	9.00	0.57	0.174	(0.222)	0.157	0.017
109	9.08	0.63	0.195	(0.221)	0.175	0.019
110	9.17	0.63	0.195	(0.220)	0.175	0.019
111	9.25	0.63	0.195	(0.219)	0.175	0.019
112	9.33	0.67	0.205	(0.218)	0.185	0.021
113	9.42	0.67	0.205	(0.217)	0.185	0.021
114	9.50	0.67	0.205	(0.216)	0.185	0.021
115	9.58	0.70	0.215	(0.215)	0.194	0.022
116	9.67	0.70	0.215	(0.214)	0.194	0.022

117	9.75	0.70	0.215	(0.213)	0.194	0.022
118	9.83	0.73	0.226	(0.212)	0.203	0.023
119	9.92	0.73	0.226	(0.211)	0.203	0.023
120	10.00	0.73	0.226	(0.210)	0.203	0.023
121	10.08	0.50	0.154	(0.208)	0.138	0.015
122	10.17	0.50	0.154	(0.207)	0.138	0.015
123	10.25	0.50	0.154	(0.206)	0.138	0.015
124	10.33	0.50	0.154	(0.205)	0.138	0.015
125	10.42	0.50	0.154	(0.204)	0.138	0.015
126	10.50	0.50	0.154	(0.203)	0.138	0.015
127	10.58	0.67	0.205	(0.202)	0.185	0.021
128	10.67	0.67	0.205	(0.201)	0.185	0.021
129	10.75	0.67	0.205	(0.201)	0.185	0.021
130	10.83	0.67	0.205	(0.200)	0.185	0.021
131	10.92	0.67	0.205	(0.199)	0.185	0.021
132	11.00	0.67	0.205	(0.198)	0.185	0.021
133	11.08	0.63	0.195	(0.197)	0.175	0.019
134	11.17	0.63	0.195	(0.196)	0.175	0.019
135	11.25	0.63	0.195	(0.195)	0.175	0.019
136	11.33	0.63	0.195	(0.194)	0.175	0.019
137	11.42	0.63	0.195	(0.193)	0.175	0.019
138	11.50	0.63	0.195	(0.192)	0.175	0.019
139	11.58	0.57	0.174	(0.191)	0.157	0.017
140	11.67	0.57	0.174	(0.190)	0.157	0.017
141	11.75	0.57	0.174	(0.189)	0.157	0.017
142	11.83	0.60	0.185	(0.188)	0.166	0.018
143	11.92	0.60	0.185	(0.187)	0.166	0.018
144	12.00	0.60	0.185	(0.186)	0.166	0.018
145	12.08	0.83	0.256	0.185 (0.231)		0.071
146	12.17	0.83	0.256	0.184 (0.231)		0.072
147	12.25	0.83	0.256	0.183 (0.231)		0.073
148	12.33	0.87	0.267	0.182 (0.240)		0.084
149	12.42	0.87	0.267	0.182 (0.240)		0.085
150	12.50	0.87	0.267	0.181 (0.240)		0.086
151	12.58	0.93	0.287	0.180 (0.259)		0.108
152	12.67	0.93	0.287	0.179 (0.259)		0.108
153	12.75	0.93	0.287	0.178 (0.259)		0.109
154	12.83	0.97	0.298	0.177 (0.268)		0.121
155	12.92	0.97	0.298	0.176 (0.268)		0.121
156	13.00	0.97	0.298	0.175 (0.268)		0.122
157	13.08	1.13	0.349	0.174 (0.314)		0.174
158	13.17	1.13	0.349	0.173 (0.314)		0.175
159	13.25	1.13	0.349	0.173 (0.314)		0.176
160	13.33	1.13	0.349	0.172 (0.314)		0.177
161	13.42	1.13	0.349	0.171 (0.314)		0.178
162	13.50	1.13	0.349	0.170 (0.314)		0.179
163	13.58	0.77	0.236	0.169 (0.212)		0.067
164	13.67	0.77	0.236	0.168 (0.212)		0.068
165	13.75	0.77	0.236	0.167 (0.212)		0.069
166	13.83	0.77	0.236	0.166 (0.212)		0.069
167	13.92	0.77	0.236	0.166 (0.212)		0.070
168	14.00	0.77	0.236	0.165 (0.212)		0.071
169	14.08	0.90	0.277	0.164 (0.249)		0.113
170	14.17	0.90	0.277	0.163 (0.249)		0.114
171	14.25	0.90	0.277	0.162 (0.249)		0.115
172	14.33	0.87	0.267	0.161 (0.240)		0.105
173	14.42	0.87	0.267	0.161 (0.240)		0.106
174	14.50	0.87	0.267	0.160 (0.240)		0.107
175	14.58	0.87	0.267	0.159 (0.240)		0.108
176	14.67	0.87	0.267	0.158 (0.240)		0.109

177	14.75	0.87	0.267	0.157	(0.240)	0.109
178	14.83	0.83	0.256	0.157	(0.231)	0.100
179	14.92	0.83	0.256	0.156	(0.231)	0.101
180	15.00	0.83	0.256	0.155	(0.231)	0.102
181	15.08	0.80	0.246	0.154	(0.222)	0.092
182	15.17	0.80	0.246	0.153	(0.222)	0.093
183	15.25	0.80	0.246	0.153	(0.222)	0.094
184	15.33	0.77	0.236	0.152	(0.212)	0.084
185	15.42	0.77	0.236	0.151	(0.212)	0.085
186	15.50	0.77	0.236	0.150	(0.212)	0.086
187	15.58	0.63	0.195	0.149	(0.175)	0.045
188	15.67	0.63	0.195	0.149	(0.175)	0.046
189	15.75	0.63	0.195	0.148	(0.175)	0.047
190	15.83	0.63	0.195	0.147	(0.175)	0.048
191	15.92	0.63	0.195	0.146	(0.175)	0.048
192	16.00	0.63	0.195	0.146	(0.175)	0.049
193	16.08	0.13	0.041	(0.145)	0.037	0.004
194	16.17	0.13	0.041	(0.144)	0.037	0.004
195	16.25	0.13	0.041	(0.143)	0.037	0.004
196	16.33	0.13	0.041	(0.143)	0.037	0.004
197	16.42	0.13	0.041	(0.142)	0.037	0.004
198	16.50	0.13	0.041	(0.141)	0.037	0.004
199	16.58	0.10	0.031	(0.141)	0.028	0.003
200	16.67	0.10	0.031	(0.140)	0.028	0.003
201	16.75	0.10	0.031	(0.139)	0.028	0.003
202	16.83	0.10	0.031	(0.138)	0.028	0.003
203	16.92	0.10	0.031	(0.138)	0.028	0.003
204	17.00	0.10	0.031	(0.137)	0.028	0.003
205	17.08	0.17	0.051	(0.136)	0.046	0.005
206	17.17	0.17	0.051	(0.136)	0.046	0.005
207	17.25	0.17	0.051	(0.135)	0.046	0.005
208	17.33	0.17	0.051	(0.134)	0.046	0.005
209	17.42	0.17	0.051	(0.134)	0.046	0.005
210	17.50	0.17	0.051	(0.133)	0.046	0.005
211	17.58	0.17	0.051	(0.132)	0.046	0.005
212	17.67	0.17	0.051	(0.132)	0.046	0.005
213	17.75	0.17	0.051	(0.131)	0.046	0.005
214	17.83	0.13	0.041	(0.130)	0.037	0.004
215	17.92	0.13	0.041	(0.130)	0.037	0.004
216	18.00	0.13	0.041	(0.129)	0.037	0.004
217	18.08	0.13	0.041	(0.128)	0.037	0.004
218	18.17	0.13	0.041	(0.128)	0.037	0.004
219	18.25	0.13	0.041	(0.127)	0.037	0.004
220	18.33	0.13	0.041	(0.127)	0.037	0.004
221	18.42	0.13	0.041	(0.126)	0.037	0.004
222	18.50	0.13	0.041	(0.125)	0.037	0.004
223	18.58	0.10	0.031	(0.125)	0.028	0.003
224	18.67	0.10	0.031	(0.124)	0.028	0.003
225	18.75	0.10	0.031	(0.124)	0.028	0.003
226	18.83	0.07	0.021	(0.123)	0.018	0.002
227	18.92	0.07	0.021	(0.122)	0.018	0.002
228	19.00	0.07	0.021	(0.122)	0.018	0.002
229	19.08	0.10	0.031	(0.121)	0.028	0.003
230	19.17	0.10	0.031	(0.121)	0.028	0.003
231	19.25	0.10	0.031	(0.120)	0.028	0.003
232	19.33	0.13	0.041	(0.119)	0.037	0.004
233	19.42	0.13	0.041	(0.119)	0.037	0.004
234	19.50	0.13	0.041	(0.118)	0.037	0.004
235	19.58	0.10	0.031	(0.118)	0.028	0.003
236	19.67	0.10	0.031	(0.117)	0.028	0.003

Total soil loss = 58912.0 Cubic Feet

Peak flow rate of this hydrograph = 1.443(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0000		0.00	Q			
0+10	0.0001		0.01	Q			
0+15	0.0002		0.02	Q			
0+20	0.0004		0.02	Q			
0+25	0.0005		0.02	Q			
0+30	0.0007		0.02	Q			
0+35	0.0009		0.02	Q			
0+40	0.0010		0.02	Q			
0+45	0.0012		0.02	Q			
0+50	0.0014		0.03	Q			
0+55	0.0016		0.03	Q			
1+ 0	0.0018		0.03	Q			
1+ 5	0.0020		0.03	Q			
1+10	0.0022		0.03	Q			
1+15	0.0024		0.03	Q			
1+20	0.0026		0.03	Q			
1+25	0.0027		0.02	Q			
1+30	0.0029		0.02	Q			
1+35	0.0031		0.02	Q			
1+40	0.0033		0.02	Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+45	0.0034	0.02	Q	|	|	|
1+50	0.0036	0.03	Q	|	|	|
1+55	0.0038	0.03	Q	|	|	|
2+ 0	0.0041	0.03	Q	|	|	|
2+ 5	0.0043	0.03	Q	|	|	|
2+10	0.0045	0.03	Q	|	|	|
2+15	0.0047	0.03	Q	|	|	|
2+20	0.0050	0.03	Q	|	|	|
2+25	0.0052	0.03	Q	|	|	|
2+30	0.0054	0.03	Q	|	|	|
2+35	0.0057	0.04	Q	|	|	|
2+40	0.0060	0.04	Q	|	|	|
2+45	0.0062	0.04	Q	|	|	|
2+50	0.0065	0.04	Q	|	|	|
2+55	0.0068	0.04	Q	|	|	|
3+ 0	0.0071	0.04	Q	|	|	|
3+ 5	0.0074	0.04	Q	|	|	|
3+10	0.0077	0.04	Q	|	|	|
3+15	0.0080	0.04	Q	|	|	|
3+20	0.0082	0.04	Q	|	|	|
3+25	0.0085	0.04	Q	|	|	|
3+30	0.0088	0.04	Q	|	|	|
3+35	0.0091	0.04	Q	|	|	|
3+40	0.0094	0.04	QV	|	|	|
3+45	0.0097	0.04	QV	|	|	|
3+50	0.0100	0.04	QV	|	|	|
3+55	0.0103	0.05	QV	|	|	|
4+ 0	0.0106	0.05	QV	|	|	|
4+ 5	0.0110	0.05	QV	|	|	|
4+10	0.0113	0.05	QV	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+15	0.0117	0.05	QV	|	|	|
4+20	0.0120	0.05	QV	|	|	|
4+25	0.0124	0.06	QV	|	|	|
4+30	0.0128	0.06	QV	|	|	|
4+35	0.0132	0.06	QV	|	|	|
4+40	0.0136	0.06	QV	|	|	|
4+45	0.0140	0.06	QV	|	|	|
4+50	0.0144	0.06	QV	|	|	|
4+55	0.0149	0.06	QV	|	|	|
5+ 0	0.0153	0.07	QV	|	|	|
5+ 5	0.0158	0.06	QV	|	|	|
5+10	0.0161	0.05	QV	|	|	|
5+15	0.0165	0.05	QV	|	|	|
5+20	0.0168	0.05	QV	|	|	|
5+25	0.0172	0.06	QV	|	|	|
5+30	0.0176	0.06	QV	|	|	|
5+35	0.0180	0.06	QV	|	|	|
5+40	0.0185	0.06	Q V	|	|	|
5+45	0.0190	0.07	Q V	|	|	|
5+50	0.0194	0.07	Q V	|	|	|
5+55	0.0199	0.07	Q V	|	|	|
6+ 0	0.0203	0.07	Q V	|	|	|
6+ 5	0.0208	0.07	Q V	|	|	|
6+10	0.0213	0.07	Q V	|	|	|
6+15	0.0218	0.07	Q V	|	|	|
6+20	0.0223	0.07	Q V	|	|	|
6+25	0.0228	0.07	Q V	|	|	|
6+30	0.0234	0.07	Q V	|	|	|
6+35	0.0239	0.08	Q V	|	|	|
6+40	0.0245	0.08	Q V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+45	0.0250	0.08	Q	V	|	|	|
6+50	0.0256	0.08	Q	V	|	|	|
6+55	0.0262	0.08	Q	V	|	|	|
7+ 0	0.0267	0.08	Q	V	|	|	|
7+ 5	0.0273	0.08	Q	V	|	|	|
7+10	0.0279	0.08	Q	V	|	|	|
7+15	0.0285	0.08	Q	V	|	|	|
7+20	0.0290	0.09	Q	V	|	|	|
7+25	0.0297	0.09	Q	V	|	|	|
7+30	0.0303	0.09	Q	V	|	|	|
7+35	0.0309	0.09	Q	V	|	|	|
7+40	0.0316	0.10	Q	V	|	|	|
7+45	0.0323	0.10	Q	V	|	|	|
7+50	0.0330	0.10	Q	V	|	|	|
7+55	0.0337	0.11	Q	V	|	|	|
8+ 0	0.0345	0.11	Q	V	|	|	|
8+ 5	0.0352	0.11	Q	V	|	|	|
8+10	0.0361	0.12	Q	V	|	|	|
8+15	0.0369	0.12	Q	V	|	|	|
8+20	0.0378	0.12	Q	V	|	|	|
8+25	0.0386	0.12	Q	V	|	|	|
8+30	0.0395	0.12	Q	V	|	|	|
8+35	0.0404	0.13	Q	V	|	|	|
8+40	0.0413	0.13	Q	V	|	|	|
8+45	0.0422	0.13	Q	V	|	|	|
8+50	0.0431	0.14	Q	V	|	|	|
8+55	0.0441	0.14	Q	V	|	|	|
9+ 0	0.0451	0.14	Q	V	|	|	|
9+ 5	0.0461	0.15	Q	V	|	|	|
9+10	0.0471	0.15	Q	V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

9+15	0.0482	0.16	Q	V	|	|	|
9+20	0.0493	0.16	Q	V	|	|	|
9+25	0.0504	0.16	Q	V	|	|	|
9+30	0.0516	0.17	Q	V	|	|	|
9+35	0.0527	0.17	Q	V	|	|	|
9+40	0.0539	0.17	Q	V	|	|	|
9+45	0.0551	0.17	Q	V	|	|	|
9+50	0.0564	0.18	Q	V	|	|	|
9+55	0.0576	0.18	Q	V	|	|	|
10+ 0	0.0589	0.18	Q	V	|	|	|
10+ 5	0.0600	0.17	Q	V	|	|	|
10+10	0.0610	0.14	Q	V	|	|	|
10+15	0.0618	0.13	Q	V	|	|	|
10+20	0.0627	0.13	Q	V	|	|	|
10+25	0.0636	0.13	Q	V	|	|	|
10+30	0.0644	0.12	Q	V	|	|	|
10+35	0.0654	0.14	Q	V	|	|	|
10+40	0.0664	0.16	Q	V	|	|	|
10+45	0.0676	0.16	Q	V	|	|	|
10+50	0.0687	0.17	Q	V	|	|	|
10+55	0.0699	0.17	Q	V	|	|	|
11+ 0	0.0710	0.17	Q	V	|	|	|
11+ 5	0.0721	0.16	Q	V	|	|	|
11+10	0.0732	0.16	Q	V	|	|	|
11+15	0.0743	0.16	Q	V	|	|	|
11+20	0.0754	0.16	Q	V	|	|	|
11+25	0.0765	0.16	Q	V	|	|	|
11+30	0.0776	0.16	Q	V	|	|	|
11+35	0.0787	0.15	Q	V	|	|	|
11+40	0.0796	0.14	Q	V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

11+45	0.0806	0.14	Q	V	|	|	|
11+50	0.0816	0.14	Q	V	|	|	|
11+55	0.0826	0.15	Q	V	|	|	|
12+ 0	0.0837	0.15	Q	V	|	|	|
12+ 5	0.0854	0.26	|Q	V	|	|	|
12+10	0.0888	0.50	|Q	V	|	|	|
12+15	0.0927	0.56	| Q	V	|	|	|
12+20	0.0969	0.61	| Q	V	|	|	|
12+25	0.1015	0.67	| Q	|V	|	|	|
12+30	0.1062	0.69	| Q	|V	|	|	|
12+35	0.1113	0.74	| Q	| V	|	|	|
12+40	0.1171	0.84	| Q	| V	|	|	|
12+45	0.1231	0.87	| Q	| V	|	|	|
12+50	0.1293	0.90	| Q	| V	|	|	|
12+55	0.1359	0.96	| Q	| V	|	|	|
13+ 0	0.1426	0.98	| Q	| V	|	|	|
13+ 5	0.1502	1.09	| Q	| V	|	|	|
13+10	0.1594	1.33	| Q	| V	|	|	|
13+15	0.1690	1.40	| Q	| V	|	|	|
13+20	0.1788	1.42	| Q	| V	|	|	|
13+25	0.1887	1.43	| Q	| V	|	|	|
13+30	0.1986	1.44	| Q	| |V	|	|	|
13+35	0.2070	1.22	| Q	| | V	|	|	|
13+40	0.2120	0.72	| Q	| | V	|	|	|
13+45	0.2161	0.60	| Q	| | V	|	|	|
13+50	0.2200	0.57	| Q	| | V	|	|	|
13+55	0.2239	0.57	| Q	| | V	|	|	|
14+ 0	0.2279	0.57	| Q	| | V	|	|	|
14+ 5	0.2324	0.66	| Q	| | V	|	|	|
14+10	0.2383	0.85	| Q	| | V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+15	0.2445	0.91	| Q	|	|	v	|
14+20	0.2507	0.90	| Q	|	|	v	|
14+25	0.2567	0.87	| Q	|	|	v	|
14+30	0.2627	0.86	| Q	|	|	v	|
14+35	0.2686	0.87	| Q	|	|	v	|
14+40	0.2746	0.87	| Q	|	|	v	|
14+45	0.2807	0.88	| Q	|	|	v	|
14+50	0.2867	0.87	| Q	|	|	|v	|
14+55	0.2924	0.83	| Q	|	|	|v	|
15+ 0	0.2980	0.82	| Q	|	|	|	v
15+ 5	0.3035	0.80	| Q	|	|	|	v
15+10	0.3088	0.76	| Q	|	|	|	v
15+15	0.3140	0.76	| Q	|	|	|	v
15+20	0.3191	0.74	| Q	|	|	|	v
15+25	0.3239	0.70	| Q	|	|	|	v
15+30	0.3287	0.69	| Q	|	|	|	v
15+35	0.3329	0.61	| Q	|	|	|	v
15+40	0.3359	0.43	|Q	|	|	|	v
15+45	0.3386	0.39	|Q	|	|	|	v
15+50	0.3413	0.39	|Q	|	|	|	v
15+55	0.3439	0.39	|Q	|	|	|	v
16+ 0	0.3466	0.39	|Q	|	|	|	v
16+ 5	0.3487	0.31	|Q	|	|	|	v
16+10	0.3495	0.10	Q	|	|	|	v
16+15	0.3498	0.05	Q	|	|	|	v
16+20	0.3501	0.04	Q	|	|	|	v
16+25	0.3503	0.03	Q	|	|	|	v
16+30	0.3506	0.03	Q	|	|	|	v
16+35	0.3508	0.03	Q	|	|	|	v
16+40	0.3510	0.03	Q	|	|	|	v

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	16+45	0.3511	0.03	Q	|	|	|	V
|	16+50	0.3513	0.03	Q	|	|	|	V
|	16+55	0.3515	0.02	Q	|	|	|	V
|	17+ 0	0.3517	0.02	Q	|	|	|	V
|	17+ 5	0.3519	0.03	Q	|	|	|	V
|	17+10	0.3521	0.04	Q	|	|	|	V
|	17+15	0.3524	0.04	Q	|	|	|	V
|	17+20	0.3527	0.04	Q	|	|	|	V
|	17+25	0.3530	0.04	Q	|	|	|	V
|	17+30	0.3533	0.04	Q	|	|	|	V
|	17+35	0.3535	0.04	Q	|	|	|	V
|	17+40	0.3538	0.04	Q	|	|	|	V
|	17+45	0.3541	0.04	Q	|	|	|	V
|	17+50	0.3544	0.04	Q	|	|	|	V
|	17+55	0.3546	0.03	Q	|	|	|	V
|	18+ 0	0.3549	0.03	Q	|	|	|	V
|	18+ 5	0.3551	0.03	Q	|	|	|	V
|	18+10	0.3553	0.03	Q	|	|	|	V
|	18+15	0.3555	0.03	Q	|	|	|	V
|	18+20	0.3558	0.03	Q	|	|	|	V
|	18+25	0.3560	0.03	Q	|	|	|	V
|	18+30	0.3562	0.03	Q	|	|	|	V
|	18+35	0.3565	0.03	Q	|	|	|	V
|	18+40	0.3566	0.03	Q	|	|	|	V
|	18+45	0.3568	0.03	Q	|	|	|	
V|	18+50	0.3570	0.02	Q	|	|	|	
V|	18+55	0.3571	0.02	Q	|	|	|	
V|	19+ 0	0.3572	0.02	Q	|	|	|	
V|	19+ 5	0.3573	0.02	Q	|	|	|	
V|	19+10	0.3575	0.02	Q	|	|	|	
V|								

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	19+15	0.3577	0.02	Q	|	|	|
V|	19+20	0.3579	0.03	Q	|	|	|
V|	19+25	0.3581	0.03	Q	|	|	|
V|	19+30	0.3583	0.03	Q	|	|	|
V|	19+35	0.3585	0.03	Q	|	|	|
V|	19+40	0.3587	0.03	Q	|	|	|
V|	19+45	0.3589	0.03	Q	|	|	|
V|	19+50	0.3590	0.02	Q	|	|	|
V|	19+55	0.3592	0.02	Q	|	|	|
V|	20+ 0	0.3593	0.02	Q	|	|	|
V|	20+ 5	0.3594	0.02	Q	|	|	|
V|	20+10	0.3596	0.02	Q	|	|	|
V|	20+15	0.3597	0.02	Q	|	|	|
V|	20+20	0.3599	0.02	Q	|	|	|
V|	20+25	0.3601	0.02	Q	|	|	|
V|	20+30	0.3602	0.02	Q	|	|	|
V|	20+35	0.3604	0.02	Q	|	|	|
V|	20+40	0.3606	0.02	Q	|	|	|
V|	20+45	0.3608	0.02	Q	|	|	|
V|	20+50	0.3609	0.02	Q	|	|	|
V|	20+55	0.3610	0.02	Q	|	|	|
V|	21+ 0	0.3612	0.02	Q	|	|	|
V|	21+ 5	0.3613	0.02	Q	|	|	|
V|	21+10	0.3615	0.02	Q	|	|	|
V|	21+15	0.3616	0.02	Q	|	|	|
V|	21+20	0.3618	0.02	Q	|	|	|
V|	21+25	0.3619	0.02	Q	|	|	|
V|	21+30	0.3620	0.02	Q	|	|	|
V|	21+35	0.3622	0.02	Q	|	|	|
V|	21+40	0.3623	0.02	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+45	0.3625	0.02	Q	|	|	|
V|	21+50	0.3626	0.02	Q	|	|	|
V|	21+55	0.3628	0.02	Q	|	|	|
V|	22+ 0	0.3629	0.02	Q	|	|	|
V|	22+ 5	0.3630	0.02	Q	|	|	|
V|	22+10	0.3632	0.02	Q	|	|	|
V|	22+15	0.3633	0.02	Q	|	|	|
V|	22+20	0.3635	0.02	Q	|	|	|
V|	22+25	0.3636	0.02	Q	|	|	|
V|	22+30	0.3637	0.02	Q	|	|	|
V|	22+35	0.3639	0.02	Q	|	|	|
V|	22+40	0.3640	0.02	Q	|	|	|
V|	22+45	0.3641	0.02	Q	|	|	|
V|	22+50	0.3642	0.02	Q	|	|	|
V|	22+55	0.3643	0.02	Q	|	|	|
V|	23+ 0	0.3644	0.02	Q	|	|	|
V|	23+ 5	0.3645	0.02	Q	|	|	|
V|	23+10	0.3647	0.02	Q	|	|	|
V|	23+15	0.3648	0.02	Q	|	|	|
V|	23+20	0.3649	0.02	Q	|	|	|
V|	23+25	0.3650	0.02	Q	|	|	|
V|	23+30	0.3651	0.02	Q	|	|	|
V|	23+35	0.3652	0.02	Q	|	|	|
V|	23+40	0.3653	0.02	Q	|	|	|
V|	23+45	0.3655	0.02	Q	|	|	|
V|	23+50	0.3656	0.02	Q	|	|	|
V|	23+55	0.3657	0.02	Q	|	|	|
V|	24+ 0	0.3658	0.02	Q	|	|	|
V|	24+ 5	0.3659	0.01	Q	|	|	|
V|	24+10	0.3659	0.00	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V	24+15	0.3659	0.00	Q			
V	24+20	0.3659	0.00	Q			
V	24+25	0.3659	0.00	Q			

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Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 8.2
Study date 02/19/21 File: moval 33preb2410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff

Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Sq. Mi. Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00(Ft.)
Length along longest watercourse = 0.205 Mi.
Length along longest watercourse measured to centroid = 0.090 Mi.
Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
8.04	1.93	15.52

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
8.04	4.64	37.31

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.930(In)
Area Averaged 100-Year Rainfall = 4.640(In)

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

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Point rain (area averaged) = 3.045(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 3.045(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 8.040 84.00 0.000
 Total Area Entered = 8.04(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
						Sum (F) = 0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
 Minimum soil loss rate ((In/Hr)) = 0.099
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	130.523	24.817
2	0.167	261.045	55.614
3	0.250	391.568	14.211
4	0.333	522.090	3.889
5	0.417	652.613	1.032
6	0.500	783.135	0.438
Sum = 100.000			Sum= 8.103

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)	
1	0.08	0.07	0.024	(0.352)	0.022	0.002
2	0.17	0.07	0.024	(0.350)	0.022	0.002
3	0.25	0.07	0.024	(0.349)	0.022	0.002
4	0.33	0.10	0.037	(0.348)	0.033	0.004
5	0.42	0.10	0.037	(0.346)	0.033	0.004
6	0.50	0.10	0.037	(0.345)	0.033	0.004
7	0.58	0.10	0.037	(0.344)	0.033	0.004
8	0.67	0.10	0.037	(0.342)	0.033	0.004
9	0.75	0.10	0.037	(0.341)	0.033	0.004
10	0.83	0.13	0.049	(0.340)	0.044	0.005
11	0.92	0.13	0.049	(0.338)	0.044	0.005
12	1.00	0.13	0.049	(0.337)	0.044	0.005
13	1.08	0.10	0.037	(0.336)	0.033	0.004
14	1.17	0.10	0.037	(0.334)	0.033	0.004
15	1.25	0.10	0.037	(0.333)	0.033	0.004
16	1.33	0.10	0.037	(0.332)	0.033	0.004
17	1.42	0.10	0.037	(0.330)	0.033	0.004
18	1.50	0.10	0.037	(0.329)	0.033	0.004
19	1.58	0.10	0.037	(0.328)	0.033	0.004

20	1. 67	0. 10	0. 037	moval 33preb2410 (0. 326)	0. 033	0. 004
21	1. 75	0. 10	0. 037	(0. 325)	0. 033	0. 004
22	1. 83	0. 13	0. 049	(0. 324)	0. 044	0. 005
23	1. 92	0. 13	0. 049	(0. 322)	0. 044	0. 005
24	2. 00	0. 13	0. 049	(0. 321)	0. 044	0. 005
25	2. 08	0. 13	0. 049	(0. 320)	0. 044	0. 005
26	2. 17	0. 13	0. 049	(0. 318)	0. 044	0. 005
27	2. 25	0. 13	0. 049	(0. 317)	0. 044	0. 005
28	2. 33	0. 13	0. 049	(0. 316)	0. 044	0. 005
29	2. 42	0. 13	0. 049	(0. 315)	0. 044	0. 005
30	2. 50	0. 13	0. 049	(0. 313)	0. 044	0. 005
31	2. 58	0. 17	0. 061	(0. 312)	0. 055	0. 006
32	2. 67	0. 17	0. 061	(0. 311)	0. 055	0. 006
33	2. 75	0. 17	0. 061	(0. 310)	0. 055	0. 006
34	2. 83	0. 17	0. 061	(0. 308)	0. 055	0. 006
35	2. 92	0. 17	0. 061	(0. 307)	0. 055	0. 006
36	3. 00	0. 17	0. 061	(0. 306)	0. 055	0. 006
37	3. 08	0. 17	0. 061	(0. 304)	0. 055	0. 006
38	3. 17	0. 17	0. 061	(0. 303)	0. 055	0. 006
39	3. 25	0. 17	0. 061	(0. 302)	0. 055	0. 006
40	3. 33	0. 17	0. 061	(0. 301)	0. 055	0. 006
41	3. 42	0. 17	0. 061	(0. 299)	0. 055	0. 006
42	3. 50	0. 17	0. 061	(0. 298)	0. 055	0. 006
43	3. 58	0. 17	0. 061	(0. 297)	0. 055	0. 006
44	3. 67	0. 17	0. 061	(0. 296)	0. 055	0. 006
45	3. 75	0. 17	0. 061	(0. 294)	0. 055	0. 006
46	3. 83	0. 20	0. 073	(0. 293)	0. 066	0. 007
47	3. 92	0. 20	0. 073	(0. 292)	0. 066	0. 007
48	4. 00	0. 20	0. 073	(0. 291)	0. 066	0. 007
49	4. 08	0. 20	0. 073	(0. 289)	0. 066	0. 007
50	4. 17	0. 20	0. 073	(0. 288)	0. 066	0. 007
51	4. 25	0. 20	0. 073	(0. 287)	0. 066	0. 007
52	4. 33	0. 23	0. 085	(0. 286)	0. 077	0. 009
53	4. 42	0. 23	0. 085	(0. 285)	0. 077	0. 009
54	4. 50	0. 23	0. 085	(0. 283)	0. 077	0. 009
55	4. 58	0. 23	0. 085	(0. 282)	0. 077	0. 009
56	4. 67	0. 23	0. 085	(0. 281)	0. 077	0. 009
57	4. 75	0. 23	0. 085	(0. 280)	0. 077	0. 009
58	4. 83	0. 27	0. 097	(0. 278)	0. 088	0. 010
59	4. 92	0. 27	0. 097	(0. 277)	0. 088	0. 010
60	5. 00	0. 27	0. 097	(0. 276)	0. 088	0. 010
61	5. 08	0. 20	0. 073	(0. 275)	0. 066	0. 007
62	5. 17	0. 20	0. 073	(0. 274)	0. 066	0. 007
63	5. 25	0. 20	0. 073	(0. 272)	0. 066	0. 007
64	5. 33	0. 23	0. 085	(0. 271)	0. 077	0. 009
65	5. 42	0. 23	0. 085	(0. 270)	0. 077	0. 009
66	5. 50	0. 23	0. 085	(0. 269)	0. 077	0. 009
67	5. 58	0. 27	0. 097	(0. 268)	0. 088	0. 010
68	5. 67	0. 27	0. 097	(0. 267)	0. 088	0. 010
69	5. 75	0. 27	0. 097	(0. 265)	0. 088	0. 010
70	5. 83	0. 27	0. 097	(0. 264)	0. 088	0. 010
71	5. 92	0. 27	0. 097	(0. 263)	0. 088	0. 010
72	6. 00	0. 27	0. 097	(0. 262)	0. 088	0. 010
73	6. 08	0. 30	0. 110	(0. 261)	0. 099	0. 011
74	6. 17	0. 30	0. 110	(0. 260)	0. 099	0. 011
75	6. 25	0. 30	0. 110	(0. 258)	0. 099	0. 011
76	6. 33	0. 30	0. 110	(0. 257)	0. 099	0. 011
77	6. 42	0. 30	0. 110	(0. 256)	0. 099	0. 011
78	6. 50	0. 30	0. 110	(0. 255)	0. 099	0. 011
79	6. 58	0. 33	0. 122	(0. 254)	0. 110	0. 012
80	6. 67	0. 33	0. 122	(0. 253)	0. 110	0. 012
81	6. 75	0. 33	0. 122	(0. 252)	0. 110	0. 012
82	6. 83	0. 33	0. 122	(0. 250)	0. 110	0. 012

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83	6. 92	0. 33	0. 122	(0. 249)	0. 110	0. 012
84	7. 00	0. 33	0. 122	(0. 248)	0. 110	0. 012
85	7. 08	0. 33	0. 122	(0. 247)	0. 110	0. 012
86	7. 17	0. 33	0. 122	(0. 246)	0. 110	0. 012
87	7. 25	0. 33	0. 122	(0. 245)	0. 110	0. 012
88	7. 33	0. 37	0. 134	(0. 244)	0. 121	0. 013
89	7. 42	0. 37	0. 134	(0. 243)	0. 121	0. 013
90	7. 50	0. 37	0. 134	(0. 241)	0. 121	0. 013
91	7. 58	0. 40	0. 146	(0. 240)	0. 132	0. 015
92	7. 67	0. 40	0. 146	(0. 239)	0. 132	0. 015
93	7. 75	0. 40	0. 146	(0. 238)	0. 132	0. 015
94	7. 83	0. 43	0. 158	(0. 237)	0. 142	0. 016
95	7. 92	0. 43	0. 158	(0. 236)	0. 142	0. 016
96	8. 00	0. 43	0. 158	(0. 235)	0. 142	0. 016
97	8. 08	0. 50	0. 183	(0. 234)	0. 164	0. 018
98	8. 17	0. 50	0. 183	(0. 233)	0. 164	0. 018
99	8. 25	0. 50	0. 183	(0. 232)	0. 164	0. 018
100	8. 33	0. 50	0. 183	(0. 230)	0. 164	0. 018
101	8. 42	0. 50	0. 183	(0. 229)	0. 164	0. 018
102	8. 50	0. 50	0. 183	(0. 228)	0. 164	0. 018
103	8. 58	0. 53	0. 195	(0. 227)	0. 175	0. 019
104	8. 67	0. 53	0. 195	(0. 226)	0. 175	0. 019
105	8. 75	0. 53	0. 195	(0. 225)	0. 175	0. 019
106	8. 83	0. 57	0. 207	(0. 224)	0. 186	0. 021
107	8. 92	0. 57	0. 207	(0. 223)	0. 186	0. 021
108	9. 00	0. 57	0. 207	(0. 222)	0. 186	0. 021
109	9. 08	0. 63	0. 231	(0. 221)	0. 208	0. 023
110	9. 17	0. 63	0. 231	(0. 220)	0. 208	0. 023
111	9. 25	0. 63	0. 231	(0. 219)	0. 208	0. 023
112	9. 33	0. 67	0. 244	0. 218 (0. 219)		0. 026
113	9. 42	0. 67	0. 244	0. 217 (0. 219)		0. 027
114	9. 50	0. 67	0. 244	0. 216 (0. 219)		0. 028
115	9. 58	0. 70	0. 256	0. 215 (0. 230)		0. 041
116	9. 67	0. 70	0. 256	0. 214 (0. 230)		0. 042
117	9. 75	0. 70	0. 256	0. 213 (0. 230)		0. 043
118	9. 83	0. 73	0. 268	0. 212 (0. 241)		0. 056
119	9. 92	0. 73	0. 268	0. 211 (0. 241)		0. 057
120	10. 00	0. 73	0. 268	0. 210 (0. 241)		0. 058
121	10. 08	0. 50	0. 183	(0. 208)	0. 164	0. 018
122	10. 17	0. 50	0. 183	(0. 207)	0. 164	0. 018
123	10. 25	0. 50	0. 183	(0. 206)	0. 164	0. 018
124	10. 33	0. 50	0. 183	(0. 205)	0. 164	0. 018
125	10. 42	0. 50	0. 183	(0. 204)	0. 164	0. 018
126	10. 50	0. 50	0. 183	(0. 203)	0. 164	0. 018
127	10. 58	0. 67	0. 244	0. 202 (0. 219)		0. 041
128	10. 67	0. 67	0. 244	0. 201 (0. 219)		0. 042
129	10. 75	0. 67	0. 244	0. 201 (0. 219)		0. 043
130	10. 83	0. 67	0. 244	0. 200 (0. 219)		0. 044
131	10. 92	0. 67	0. 244	0. 199 (0. 219)		0. 045
132	11. 00	0. 67	0. 244	0. 198 (0. 219)		0. 046
133	11. 08	0. 63	0. 231	0. 197 (0. 208)		0. 035
134	11. 17	0. 63	0. 231	0. 196 (0. 208)		0. 036
135	11. 25	0. 63	0. 231	0. 195 (0. 208)		0. 037
136	11. 33	0. 63	0. 231	0. 194 (0. 208)		0. 038
137	11. 42	0. 63	0. 231	0. 193 (0. 208)		0. 039
138	11. 50	0. 63	0. 231	0. 192 (0. 208)		0. 040
139	11. 58	0. 57	0. 207	(0. 191)	0. 186	0. 021
140	11. 67	0. 57	0. 207	(0. 190)	0. 186	0. 021
141	11. 75	0. 57	0. 207	(0. 189)	0. 186	0. 021
142	11. 83	0. 60	0. 219	0. 188 (0. 197)		0. 031
143	11. 92	0. 60	0. 219	0. 187 (0. 197)		0. 032
144	12. 00	0. 60	0. 219	0. 186 (0. 197)		0. 033
145	12. 08	0. 83	0. 304	0. 185 (0. 274)		0. 119

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146	12. 17	0. 83	0. 304	0. 184	(0. 274)	0. 120
147	12. 25	0. 83	0. 304	0. 183	(0. 274)	0. 121
148	12. 33	0. 87	0. 317	0. 182	(0. 285)	0. 134
149	12. 42	0. 87	0. 317	0. 182	(0. 285)	0. 135
150	12. 50	0. 87	0. 317	0. 181	(0. 285)	0. 136
151	12. 58	0. 93	0. 341	0. 180	(0. 307)	0. 161
152	12. 67	0. 93	0. 341	0. 179	(0. 307)	0. 162
153	12. 75	0. 93	0. 341	0. 178	(0. 307)	0. 163
154	12. 83	0. 97	0. 353	0. 177	(0. 318)	0. 176
155	12. 92	0. 97	0. 353	0. 176	(0. 318)	0. 177
156	13. 00	0. 97	0. 353	0. 175	(0. 318)	0. 178
157	13. 08	1. 13	0. 414	0. 174	(0. 373)	0. 240
158	13. 17	1. 13	0. 414	0. 173	(0. 373)	0. 241
159	13. 25	1. 13	0. 414	0. 173	(0. 373)	0. 242
160	13. 33	1. 13	0. 414	0. 172	(0. 373)	0. 242
161	13. 42	1. 13	0. 414	0. 171	(0. 373)	0. 243
162	13. 50	1. 13	0. 414	0. 170	(0. 373)	0. 244
163	13. 58	0. 77	0. 280	0. 169	(0. 252)	0. 111
164	13. 67	0. 77	0. 280	0. 168	(0. 252)	0. 112
165	13. 75	0. 77	0. 280	0. 167	(0. 252)	0. 113
166	13. 83	0. 77	0. 280	0. 166	(0. 252)	0. 114
167	13. 92	0. 77	0. 280	0. 166	(0. 252)	0. 114
168	14. 00	0. 77	0. 280	0. 165	(0. 252)	0. 115
169	14. 08	0. 90	0. 329	0. 164	(0. 296)	0. 165
170	14. 17	0. 90	0. 329	0. 163	(0. 296)	0. 166
171	14. 25	0. 90	0. 329	0. 162	(0. 296)	0. 167
172	14. 33	0. 87	0. 317	0. 161	(0. 285)	0. 155
173	14. 42	0. 87	0. 317	0. 161	(0. 285)	0. 156
174	14. 50	0. 87	0. 317	0. 160	(0. 285)	0. 157
175	14. 58	0. 87	0. 317	0. 159	(0. 285)	0. 158
176	14. 67	0. 87	0. 317	0. 158	(0. 285)	0. 158
177	14. 75	0. 87	0. 317	0. 157	(0. 285)	0. 159
178	14. 83	0. 83	0. 304	0. 157	(0. 274)	0. 148
179	14. 92	0. 83	0. 304	0. 156	(0. 274)	0. 149
180	15. 00	0. 83	0. 304	0. 155	(0. 274)	0. 150
181	15. 08	0. 80	0. 292	0. 154	(0. 263)	0. 138
182	15. 17	0. 80	0. 292	0. 153	(0. 263)	0. 139
183	15. 25	0. 80	0. 292	0. 153	(0. 263)	0. 140
184	15. 33	0. 77	0. 280	0. 152	(0. 252)	0. 128
185	15. 42	0. 77	0. 280	0. 151	(0. 252)	0. 129
186	15. 50	0. 77	0. 280	0. 150	(0. 252)	0. 130
187	15. 58	0. 63	0. 231	0. 149	(0. 208)	0. 082
188	15. 67	0. 63	0. 231	0. 149	(0. 208)	0. 083
189	15. 75	0. 63	0. 231	0. 148	(0. 208)	0. 083
190	15. 83	0. 63	0. 231	0. 147	(0. 208)	0. 084
191	15. 92	0. 63	0. 231	0. 146	(0. 208)	0. 085
192	16. 00	0. 63	0. 231	0. 146	(0. 208)	0. 086
193	16. 08	0. 13	0. 049	(0. 145)	0. 044	0. 005
194	16. 17	0. 13	0. 049	(0. 144)	0. 044	0. 005
195	16. 25	0. 13	0. 049	(0. 143)	0. 044	0. 005
196	16. 33	0. 13	0. 049	(0. 143)	0. 044	0. 005
197	16. 42	0. 13	0. 049	(0. 142)	0. 044	0. 005
198	16. 50	0. 13	0. 049	(0. 141)	0. 044	0. 005
199	16. 58	0. 10	0. 037	(0. 141)	0. 033	0. 004
200	16. 67	0. 10	0. 037	(0. 140)	0. 033	0. 004
201	16. 75	0. 10	0. 037	(0. 139)	0. 033	0. 004
202	16. 83	0. 10	0. 037	(0. 138)	0. 033	0. 004
203	16. 92	0. 10	0. 037	(0. 138)	0. 033	0. 004
204	17. 00	0. 10	0. 037	(0. 137)	0. 033	0. 004
205	17. 08	0. 17	0. 061	(0. 136)	0. 055	0. 006
206	17. 17	0. 17	0. 061	(0. 136)	0. 055	0. 006
207	17. 25	0. 17	0. 061	(0. 135)	0. 055	0. 006
208	17. 33	0. 17	0. 061	(0. 134)	0. 055	0. 006

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209	17.42	0.17	0.061	(0.134)	0.055	0.006
210	17.50	0.17	0.061	(0.133)	0.055	0.006
211	17.58	0.17	0.061	(0.132)	0.055	0.006
212	17.67	0.17	0.061	(0.132)	0.055	0.006
213	17.75	0.17	0.061	(0.131)	0.055	0.006
214	17.83	0.13	0.049	(0.130)	0.044	0.005
215	17.92	0.13	0.049	(0.130)	0.044	0.005
216	18.00	0.13	0.049	(0.129)	0.044	0.005
217	18.08	0.13	0.049	(0.128)	0.044	0.005
218	18.17	0.13	0.049	(0.128)	0.044	0.005
219	18.25	0.13	0.049	(0.127)	0.044	0.005
220	18.33	0.13	0.049	(0.127)	0.044	0.005
221	18.42	0.13	0.049	(0.126)	0.044	0.005
222	18.50	0.13	0.049	(0.125)	0.044	0.005
223	18.58	0.10	0.037	(0.125)	0.033	0.004
224	18.67	0.10	0.037	(0.124)	0.033	0.004
225	18.75	0.10	0.037	(0.124)	0.033	0.004
226	18.83	0.07	0.024	(0.123)	0.022	0.002
227	18.92	0.07	0.024	(0.122)	0.022	0.002
228	19.00	0.07	0.024	(0.122)	0.022	0.002
229	19.08	0.10	0.037	(0.121)	0.033	0.004
230	19.17	0.10	0.037	(0.121)	0.033	0.004
231	19.25	0.10	0.037	(0.120)	0.033	0.004
232	19.33	0.13	0.049	(0.119)	0.044	0.005
233	19.42	0.13	0.049	(0.119)	0.044	0.005
234	19.50	0.13	0.049	(0.118)	0.044	0.005
235	19.58	0.10	0.037	(0.118)	0.033	0.004
236	19.67	0.10	0.037	(0.117)	0.033	0.004
237	19.75	0.10	0.037	(0.117)	0.033	0.004
238	19.83	0.07	0.024	(0.116)	0.022	0.002
239	19.92	0.07	0.024	(0.116)	0.022	0.002
240	20.00	0.07	0.024	(0.115)	0.022	0.002
241	20.08	0.10	0.037	(0.115)	0.033	0.004
242	20.17	0.10	0.037	(0.114)	0.033	0.004
243	20.25	0.10	0.037	(0.114)	0.033	0.004
244	20.33	0.10	0.037	(0.113)	0.033	0.004
245	20.42	0.10	0.037	(0.113)	0.033	0.004
246	20.50	0.10	0.037	(0.112)	0.033	0.004
247	20.58	0.10	0.037	(0.112)	0.033	0.004
248	20.67	0.10	0.037	(0.111)	0.033	0.004
249	20.75	0.10	0.037	(0.111)	0.033	0.004
250	20.83	0.07	0.024	(0.110)	0.022	0.002
251	20.92	0.07	0.024	(0.110)	0.022	0.002
252	21.00	0.07	0.024	(0.110)	0.022	0.002
253	21.08	0.10	0.037	(0.109)	0.033	0.004
254	21.17	0.10	0.037	(0.109)	0.033	0.004
255	21.25	0.10	0.037	(0.108)	0.033	0.004
256	21.33	0.07	0.024	(0.108)	0.022	0.002
257	21.42	0.07	0.024	(0.107)	0.022	0.002
258	21.50	0.07	0.024	(0.107)	0.022	0.002
259	21.58	0.10	0.037	(0.107)	0.033	0.004
260	21.67	0.10	0.037	(0.106)	0.033	0.004
261	21.75	0.10	0.037	(0.106)	0.033	0.004
262	21.83	0.07	0.024	(0.105)	0.022	0.002
263	21.92	0.07	0.024	(0.105)	0.022	0.002
264	22.00	0.07	0.024	(0.105)	0.022	0.002
265	22.08	0.10	0.037	(0.104)	0.033	0.004
266	22.17	0.10	0.037	(0.104)	0.033	0.004
267	22.25	0.10	0.037	(0.104)	0.033	0.004
268	22.33	0.07	0.024	(0.103)	0.022	0.002
269	22.42	0.07	0.024	(0.103)	0.022	0.002
270	22.50	0.07	0.024	(0.103)	0.022	0.002
271	22.58	0.07	0.024	(0.102)	0.022	0.002

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272	22.67	0.07	0.024	(0.102)	0.022	0.002
273	22.75	0.07	0.024	(0.102)	0.022	0.002
274	22.83	0.07	0.024	(0.102)	0.022	0.002
275	22.92	0.07	0.024	(0.101)	0.022	0.002
276	23.00	0.07	0.024	(0.101)	0.022	0.002
277	23.08	0.07	0.024	(0.101)	0.022	0.002
278	23.17	0.07	0.024	(0.101)	0.022	0.002
279	23.25	0.07	0.024	(0.100)	0.022	0.002
280	23.33	0.07	0.024	(0.100)	0.022	0.002
281	23.42	0.07	0.024	(0.100)	0.022	0.002
282	23.50	0.07	0.024	(0.100)	0.022	0.002
283	23.58	0.07	0.024	(0.100)	0.022	0.002
284	23.67	0.07	0.024	(0.100)	0.022	0.002
285	23.75	0.07	0.024	(0.099)	0.022	0.002
286	23.83	0.07	0.024	(0.099)	0.022	0.002
287	23.92	0.07	0.024	(0.099)	0.022	0.002
288	24.00	0.07	0.024	(0.099)	0.022	0.002

(Loss Rate Not Used)
 Sum = 100.0
 Flood volume = Effective rainfall 0.80(In) Sum = 9.6
 times area 8.0(Ac.)/[(In)/(Ft.)] = 0.5(Ac. Ft)
 Total soil loss = 2.24(In)
 Total soil loss = 1.502(Ac. Ft)
 Total rainfall = 3.04(In)
 Flood volume = 23447.9 Cubic Feet
 Total soil loss = 65417.2 Cubic Feet

 Peak flow rate of this hydrograph = 1.972(CFS)

+++++
 24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac. Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.02	Q				
0+15	0.0003	0.02	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.03	Q				
0+30	0.0008	0.03	Q				
0+35	0.0010	0.03	Q				
0+40	0.0012	0.03	Q				
0+45	0.0014	0.03	Q				
0+50	0.0016	0.03	Q				
0+55	0.0019	0.04	Q				
1+ 0	0.0022	0.04	Q				
1+ 5	0.0024	0.04	Q				
1+10	0.0026	0.03	Q				
1+15	0.0029	0.03	Q				
1+20	0.0031	0.03	Q				
1+25	0.0033	0.03	Q				
1+30	0.0035	0.03	Q				
1+35	0.0037	0.03	Q				
1+40	0.0039	0.03	Q				
1+45	0.0041	0.03	Q				
1+50	0.0043	0.03	Q				
1+55	0.0046	0.04	Q				
2+ 0	0.0048	0.04	Q				
2+ 5	0.0051	0.04	Q				

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2+10	0. 0054	0. 04	Q
2+15	0. 0056	0. 04	Q
2+20	0. 0059	0. 04	Q
2+25	0. 0062	0. 04	Q
2+30	0. 0065	0. 04	Q
2+35	0. 0067	0. 04	Q
2+40	0. 0071	0. 05	Q
2+45	0. 0074	0. 05	Q
2+50	0. 0077	0. 05	Q
2+55	0. 0081	0. 05	Q
3+ 0	0. 0084	0. 05	Q
3+ 5	0. 0088	0. 05	Q
3+10	0. 0091	0. 05	Q
3+15	0. 0094	0. 05	Q
3+20	0. 0098	0. 05	Q
3+25	0. 0101	0. 05	Q
3+30	0. 0105	0. 05	Q
3+35	0. 0108	0. 05	Q
3+40	0. 0111	0. 05	Q
3+45	0. 0115	0. 05	Q
3+50	0. 0118	0. 05	Q
3+55	0. 0122	0. 06	Q
4+ 0	0. 0126	0. 06	Q
4+ 5	0. 0130	0. 06	Q
4+10	0. 0135	0. 06	Q
4+15	0. 0139	0. 06	QV
4+20	0. 0143	0. 06	QV
4+25	0. 0148	0. 07	QV
4+30	0. 0152	0. 07	QV
4+35	0. 0157	0. 07	QV
4+40	0. 0162	0. 07	QV
4+45	0. 0167	0. 07	QV
4+50	0. 0171	0. 07	QV
4+55	0. 0177	0. 08	QV
5+ 0	0. 0182	0. 08	QV
5+ 5	0. 0187	0. 07	QV
5+10	0. 0192	0. 06	QV
5+15	0. 0196	0. 06	QV
5+20	0. 0200	0. 06	QV
5+25	0. 0205	0. 07	QV
5+30	0. 0209	0. 07	QV
5+35	0. 0214	0. 07	QV
5+40	0. 0220	0. 08	QV
5+45	0. 0225	0. 08	QV
5+50	0. 0230	0. 08	QV
5+55	0. 0236	0. 08	QV
6+ 0	0. 0241	0. 08	QV
6+ 5	0. 0247	0. 08	QV
6+10	0. 0253	0. 09	QV
6+15	0. 0259	0. 09	QV
6+20	0. 0265	0. 09	QV
6+25	0. 0271	0. 09	Q V
6+30	0. 0277	0. 09	Q V
6+35	0. 0284	0. 09	Q V
6+40	0. 0290	0. 10	Q V
6+45	0. 0297	0. 10	Q V
6+50	0. 0304	0. 10	Q V
6+55	0. 0311	0. 10	Q V
7+ 0	0. 0317	0. 10	Q V
7+ 5	0. 0324	0. 10	Q V
7+10	0. 0331	0. 10	Q V
7+15	0. 0338	0. 10	Q V
7+20	0. 0345	0. 10	Q V

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7+25	0. 0352	0. 11	Q	V
7+30	0. 0360	0. 11	Q	V
7+35	0. 0367	0. 11	Q	V
7+40	0. 0375	0. 12	Q	V
7+45	0. 0383	0. 12	Q	V
7+50	0. 0392	0. 12	Q	V
7+55	0. 0400	0. 13	Q	V
8+ 0	0. 0409	0. 13	Q	V
8+ 5	0. 0418	0. 13	Q	V
8+10	0. 0428	0. 14	Q	V
8+15	0. 0438	0. 15	Q	V
8+20	0. 0449	0. 15	Q	V
8+25	0. 0459	0. 15	Q	V
8+30	0. 0469	0. 15	Q	V
8+35	0. 0479	0. 15	Q	V
8+40	0. 0490	0. 16	Q	V
8+45	0. 0501	0. 16	Q	V
8+50	0. 0512	0. 16	Q	V
8+55	0. 0523	0. 17	Q	V
9+ 0	0. 0535	0. 17	Q	V
9+ 5	0. 0547	0. 17	Q	V
9+10	0. 0559	0. 18	Q	V
9+15	0. 0572	0. 19	Q	V
9+20	0. 0586	0. 19	Q	V
9+25	0. 0600	0. 21	Q	V
9+30	0. 0615	0. 22	Q	V
9+35	0. 0632	0. 25	Q	V
9+40	0. 0654	0. 31	Q	V
9+45	0. 0677	0. 34	Q	V
9+50	0. 0703	0. 37	Q	V
9+55	0. 0733	0. 44	Q	V
10+ 0	0. 0764	0. 46	Q	V
10+ 5	0. 0791	0. 39	Q	V
10+10	0. 0806	0. 21	Q	V
10+15	0. 0817	0. 17	Q	V
10+20	0. 0828	0. 15	Q	V
10+25	0. 0838	0. 15	Q	V
10+30	0. 0848	0. 15	Q	V
10+35	0. 0862	0. 19	Q	V
10+40	0. 0882	0. 30	Q	V
10+45	0. 0905	0. 33	Q	V
10+50	0. 0929	0. 35	Q	V
10+55	0. 0953	0. 36	Q	V
11+ 0	0. 0978	0. 36	Q	V
11+ 5	0. 1002	0. 35	Q	V
11+10	0. 1023	0. 30	Q	V
11+15	0. 1044	0. 30	Q	V
11+20	0. 1064	0. 30	Q	V
11+25	0. 1085	0. 31	Q	V
11+30	0. 1107	0. 31	Q	V
11+35	0. 1126	0. 28	Q	V
11+40	0. 1140	0. 20	Q	V
11+45	0. 1152	0. 18	Q	V
11+50	0. 1165	0. 19	Q	V
11+55	0. 1182	0. 24	Q	V
12+ 0	0. 1199	0. 26	Q	V
12+ 5	0. 1229	0. 44	Q	V
12+10	0. 1287	0. 83	Q	V
12+15	0. 1351	0. 94	Q	V
12+20	0. 1420	1. 00	Q	V
12+25	0. 1493	1. 07	Q	V
12+30	0. 1568	1. 09	Q	V
12+35	0. 1648	1. 15	Q	V

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12+40	0. 1735	1. 27	Q
12+45	0. 1825	1. 30	Q
12+50	0. 1917	1. 34	Q
12+55	0. 2014	1. 41	Q
13+ 0	0. 2113	1. 43	Q
13+ 5	0. 2221	1. 56	Q
13+10	0. 2348	1. 85	Q
13+15	0. 2480	1. 92	Q
13+20	0. 2615	1. 95	Q
13+25	0. 2750	1. 96	Q
13+30	0. 2886	1. 97	Q
13+35	0. 3003	1. 71	Q
13+40	0. 3080	1. 11	Q
13+45	0. 3146	0. 97	Q
13+50	0. 3211	0. 93	Q
13+55	0. 3274	0. 93	Q
14+ 0	0. 3338	0. 93	Q
14+ 5	0. 3409	1. 03	Q
14+10	0. 3496	1. 26	Q
14+15	0. 3587	1. 32	Q
14+20	0. 3678	1. 32	Q
14+25	0. 3766	1. 28	Q
14+30	0. 3853	1. 27	Q
14+35	0. 3941	1. 27	Q
14+40	0. 4029	1. 28	Q
14+45	0. 4118	1. 28	Q
14+50	0. 4205	1. 27	Q
14+55	0. 4289	1. 22	Q
15+ 0	0. 4372	1. 21	Q
15+ 5	0. 4454	1. 19	Q
15+10	0. 4533	1. 14	Q
15+15	0. 4610	1. 13	Q
15+20	0. 4687	1. 11	Q
15+25	0. 4760	1. 06	Q
15+30	0. 4832	1. 05	Q
15+35	0. 4898	0. 96	Q
15+40	0. 4949	0. 74	Q
15+45	0. 4997	0. 69	Q
15+50	0. 5044	0. 68	Q
15+55	0. 5091	0. 68	Q
16+ 0	0. 5138	0. 69	Q
16+ 5	0. 5175	0. 53	Q
16+10	0. 5186	0. 17	Q
16+15	0. 5192	0. 07	Q
16+20	0. 5195	0. 05	Q
16+25	0. 5198	0. 04	Q
16+30	0. 5201	0. 04	Q
16+35	0. 5203	0. 04	Q
16+40	0. 5205	0. 03	Q
16+45	0. 5207	0. 03	Q
16+50	0. 5209	0. 03	Q
16+55	0. 5211	0. 03	Q
17+ 0	0. 5214	0. 03	Q
17+ 5	0. 5216	0. 03	Q
17+10	0. 5219	0. 05	Q
17+15	0. 5222	0. 05	Q
17+20	0. 5226	0. 05	Q
17+25	0. 5229	0. 05	Q
17+30	0. 5233	0. 05	Q
17+35	0. 5236	0. 05	Q
17+40	0. 5239	0. 05	Q
17+45	0. 5243	0. 05	Q
17+50	0. 5246	0. 05	Q

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17+55	0. 5249	0. 04	Q			V
18+ 0	0. 5252	0. 04	Q			V
18+ 5	0. 5254	0. 04	Q			V
18+10	0. 5257	0. 04	Q			V
18+15	0. 5260	0. 04	Q			V
18+20	0. 5262	0. 04	Q			V
18+25	0. 5265	0. 04	Q			V
18+30	0. 5268	0. 04	Q			V
18+35	0. 5270	0. 04	Q			V
18+40	0. 5273	0. 03	Q			V
18+45	0. 5275	0. 03	Q			V
18+50	0. 5277	0. 03	Q			V
18+55	0. 5278	0. 02	Q			V
19+ 0	0. 5279	0. 02	Q			V
19+ 5	0. 5281	0. 02	Q			V
19+10	0. 5283	0. 03	Q			V
19+15	0. 5285	0. 03	Q			V
19+20	0. 5287	0. 03	Q			V
19+25	0. 5290	0. 04	Q			V
19+30	0. 5292	0. 04	Q			V
19+35	0. 5295	0. 04	Q			V
19+40	0. 5297	0. 03	Q			V
19+45	0. 5299	0. 03	Q			V
19+50	0. 5301	0. 03	Q			V
19+55	0. 5303	0. 02	Q			V
20+ 0	0. 5304	0. 02	Q			V
20+ 5	0. 5306	0. 02	Q			V
20+10	0. 5307	0. 03	Q			V
20+15	0. 5309	0. 03	Q			V
20+20	0. 5311	0. 03	Q			V
20+25	0. 5313	0. 03	Q			V
20+30	0. 5316	0. 03	Q			V
20+35	0. 5318	0. 03	Q			V
20+40	0. 5320	0. 03	Q			V
20+45	0. 5322	0. 03	Q			V
20+50	0. 5324	0. 03	Q			V
20+55	0. 5325	0. 02	Q			V
21+ 0	0. 5326	0. 02	Q			V
21+ 5	0. 5328	0. 02	Q			V
21+10	0. 5330	0. 03	Q			V
21+15	0. 5332	0. 03	Q			V
21+20	0. 5334	0. 03	Q			V
21+25	0. 5335	0. 02	Q			V
21+30	0. 5337	0. 02	Q			V
21+35	0. 5338	0. 02	Q			V
21+40	0. 5340	0. 03	Q			V
21+45	0. 5342	0. 03	Q			V
21+50	0. 5344	0. 03	Q			V
21+55	0. 5345	0. 02	Q			V
22+ 0	0. 5347	0. 02	Q			V
22+ 5	0. 5348	0. 02	Q			V
22+10	0. 5350	0. 03	Q			V
22+15	0. 5352	0. 03	Q			V
22+20	0. 5354	0. 03	Q			V
22+25	0. 5356	0. 02	Q			V
22+30	0. 5357	0. 02	Q			V
22+35	0. 5358	0. 02	Q			V
22+40	0. 5360	0. 02	Q			V
22+45	0. 5361	0. 02	Q			V
22+50	0. 5362	0. 02	Q			V
22+55	0. 5364	0. 02	Q			V
23+ 0	0. 5365	0. 02	Q			V
23+ 5	0. 5367	0. 02	Q			V

moval 33preb2410

23+10	0. 5368	0. 02	Q				V
23+15	0. 5369	0. 02	Q				V
23+20	0. 5371	0. 02	Q				V
23+25	0. 5372	0. 02	Q				V
23+30	0. 5373	0. 02	Q				V
23+35	0. 5375	0. 02	Q				V
23+40	0. 5376	0. 02	Q				V
23+45	0. 5377	0. 02	Q				V
23+50	0. 5379	0. 02	Q				V
23+55	0. 5380	0. 02	Q				V
24+ 0	0. 5382	0. 02	Q				V
24+ 5	0. 5383	0. 01	Q				V
24+10	0. 5383	0. 00	Q				V
24+15	0. 5383	0. 00	Q				V
24+20	0. 5383	0. 00	Q				V
24+25	0. 5383	0. 00	Q				V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preb24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--
Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
Length along longest watercourse = 0.205 Mi.
Mi. Length along longest watercourse measured to centroid = 0.090

Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.037	(0.152)	0.033	0.004
2	0.17	0.07	0.037	(0.152)	0.033	0.004
3	0.25	0.07	0.037	(0.151)	0.033	0.004
4	0.33	0.10	0.056	(0.150)	0.050	0.006
5	0.42	0.10	0.056	(0.150)	0.050	0.006
6	0.50	0.10	0.056	(0.149)	0.050	0.006
7	0.58	0.10	0.056	(0.149)	0.050	0.006
8	0.67	0.10	0.056	(0.148)	0.050	0.006
9	0.75	0.10	0.056	(0.147)	0.050	0.006
10	0.83	0.13	0.074	(0.147)	0.067	0.007
11	0.92	0.13	0.074	(0.146)	0.067	0.007
12	1.00	0.13	0.074	(0.146)	0.067	0.007
13	1.08	0.10	0.056	(0.145)	0.050	0.006
14	1.17	0.10	0.056	(0.145)	0.050	0.006
15	1.25	0.10	0.056	(0.144)	0.050	0.006
16	1.33	0.10	0.056	(0.143)	0.050	0.006
17	1.42	0.10	0.056	(0.143)	0.050	0.006
18	1.50	0.10	0.056	(0.142)	0.050	0.006
19	1.58	0.10	0.056	(0.142)	0.050	0.006
20	1.67	0.10	0.056	(0.141)	0.050	0.006
21	1.75	0.10	0.056	(0.141)	0.050	0.006
22	1.83	0.13	0.074	(0.140)	0.067	0.007
23	1.92	0.13	0.074	(0.139)	0.067	0.007
24	2.00	0.13	0.074	(0.139)	0.067	0.007
25	2.08	0.13	0.074	(0.138)	0.067	0.007
26	2.17	0.13	0.074	(0.138)	0.067	0.007
27	2.25	0.13	0.074	(0.137)	0.067	0.007
28	2.33	0.13	0.074	(0.137)	0.067	0.007
29	2.42	0.13	0.074	(0.136)	0.067	0.007
30	2.50	0.13	0.074	(0.136)	0.067	0.007
31	2.58	0.17	0.093	(0.135)	0.084	0.009
32	2.67	0.17	0.093	(0.134)	0.084	0.009
33	2.75	0.17	0.093	(0.134)	0.084	0.009
34	2.83	0.17	0.093	(0.133)	0.084	0.009
35	2.92	0.17	0.093	(0.133)	0.084	0.009
36	3.00	0.17	0.093	(0.132)	0.084	0.009
37	3.08	0.17	0.093	(0.132)	0.084	0.009
38	3.17	0.17	0.093	(0.131)	0.084	0.009
39	3.25	0.17	0.093	(0.131)	0.084	0.009
40	3.33	0.17	0.093	(0.130)	0.084	0.009
41	3.42	0.17	0.093	(0.129)	0.084	0.009
42	3.50	0.17	0.093	(0.129)	0.084	0.009
43	3.58	0.17	0.093	(0.128)	0.084	0.009
44	3.67	0.17	0.093	(0.128)	0.084	0.009
45	3.75	0.17	0.093	(0.127)	0.084	0.009
46	3.83	0.20	0.111	(0.127)	0.100	0.011
47	3.92	0.20	0.111	(0.126)	0.100	0.011
48	4.00	0.20	0.111	(0.126)	0.100	0.011
49	4.08	0.20	0.111	(0.125)	0.100	0.011
50	4.17	0.20	0.111	(0.125)	0.100	0.011
51	4.25	0.20	0.111	(0.124)	0.100	0.011
52	4.33	0.23	0.130	(0.124)	0.117	0.013
53	4.42	0.23	0.130	(0.123)	0.117	0.013
54	4.50	0.23	0.130	(0.123)	0.117	0.013
55	4.58	0.23	0.130	(0.122)	0.117	0.013
56	4.67	0.23	0.130	(0.121)	0.117	0.013

57	4.75	0.23	0.130	(0.121)	0.117	0.013
58	4.83	0.27	0.148	0.120	(0.134)	0.028
59	4.92	0.27	0.148	0.120	(0.134)	0.029
60	5.00	0.27	0.148	0.119	(0.134)	0.029
61	5.08	0.20	0.111	(0.119)	0.100	0.011
62	5.17	0.20	0.111	(0.118)	0.100	0.011
63	5.25	0.20	0.111	(0.118)	0.100	0.011
64	5.33	0.23	0.130	(0.117)	0.117	0.013
65	5.42	0.23	0.130	0.117	(0.117)	0.013
66	5.50	0.23	0.130	0.116	(0.117)	0.014
67	5.58	0.27	0.148	0.116	(0.134)	0.033
68	5.67	0.27	0.148	0.115	(0.134)	0.033
69	5.75	0.27	0.148	0.115	(0.134)	0.034
70	5.83	0.27	0.148	0.114	(0.134)	0.034
71	5.92	0.27	0.148	0.114	(0.134)	0.035
72	6.00	0.27	0.148	0.113	(0.134)	0.035
73	6.08	0.30	0.167	0.113	(0.150)	0.054
74	6.17	0.30	0.167	0.112	(0.150)	0.055
75	6.25	0.30	0.167	0.112	(0.150)	0.055
76	6.33	0.30	0.167	0.111	(0.150)	0.056
77	6.42	0.30	0.167	0.111	(0.150)	0.056
78	6.50	0.30	0.167	0.110	(0.150)	0.057
79	6.58	0.33	0.186	0.110	(0.167)	0.076
80	6.67	0.33	0.186	0.109	(0.167)	0.076
81	6.75	0.33	0.186	0.109	(0.167)	0.077
82	6.83	0.33	0.186	0.108	(0.167)	0.077
83	6.92	0.33	0.186	0.108	(0.167)	0.078
84	7.00	0.33	0.186	0.107	(0.167)	0.078
85	7.08	0.33	0.186	0.107	(0.167)	0.079
86	7.17	0.33	0.186	0.106	(0.167)	0.079
87	7.25	0.33	0.186	0.106	(0.167)	0.080
88	7.33	0.37	0.204	0.105	(0.184)	0.099
89	7.42	0.37	0.204	0.105	(0.184)	0.099
90	7.50	0.37	0.204	0.104	(0.184)	0.100
91	7.58	0.40	0.223	0.104	(0.200)	0.119
92	7.67	0.40	0.223	0.103	(0.200)	0.119
93	7.75	0.40	0.223	0.103	(0.200)	0.120
94	7.83	0.43	0.241	0.102	(0.217)	0.139
95	7.92	0.43	0.241	0.102	(0.217)	0.139
96	8.00	0.43	0.241	0.102	(0.217)	0.140
97	8.08	0.50	0.278	0.101	(0.251)	0.177
98	8.17	0.50	0.278	0.101	(0.251)	0.178
99	8.25	0.50	0.278	0.100	(0.251)	0.178
100	8.33	0.50	0.278	0.100	(0.251)	0.179
101	8.42	0.50	0.278	0.099	(0.251)	0.179
102	8.50	0.50	0.278	0.099	(0.251)	0.180
103	8.58	0.53	0.297	0.098	(0.267)	0.199
104	8.67	0.53	0.297	0.098	(0.267)	0.199
105	8.75	0.53	0.297	0.097	(0.267)	0.200
106	8.83	0.57	0.316	0.097	(0.284)	0.219
107	8.92	0.57	0.316	0.096	(0.284)	0.219
108	9.00	0.57	0.316	0.096	(0.284)	0.220
109	9.08	0.63	0.353	0.096	(0.317)	0.257
110	9.17	0.63	0.353	0.095	(0.317)	0.258
111	9.25	0.63	0.353	0.095	(0.317)	0.258
112	9.33	0.67	0.371	0.094	(0.334)	0.277
113	9.42	0.67	0.371	0.094	(0.334)	0.277
114	9.50	0.67	0.371	0.093	(0.334)	0.278
115	9.58	0.70	0.390	0.093	(0.351)	0.297
116	9.67	0.70	0.390	0.092	(0.351)	0.297

117	9.75	0.70	0.390	0.092	(0.351)	0.298
118	9.83	0.73	0.408	0.091	(0.367)	0.317
119	9.92	0.73	0.408	0.091	(0.367)	0.317
120	10.00	0.73	0.408	0.091	(0.367)	0.318
121	10.08	0.50	0.278	0.090	(0.251)	0.188
122	10.17	0.50	0.278	0.090	(0.251)	0.189
123	10.25	0.50	0.278	0.089	(0.251)	0.189
124	10.33	0.50	0.278	0.089	(0.251)	0.190
125	10.42	0.50	0.278	0.088	(0.251)	0.190
126	10.50	0.50	0.278	0.088	(0.251)	0.190
127	10.58	0.67	0.371	0.088	(0.334)	0.284
128	10.67	0.67	0.371	0.087	(0.334)	0.284
129	10.75	0.67	0.371	0.087	(0.334)	0.284
130	10.83	0.67	0.371	0.086	(0.334)	0.285
131	10.92	0.67	0.371	0.086	(0.334)	0.285
132	11.00	0.67	0.371	0.085	(0.334)	0.286
133	11.08	0.63	0.353	0.085	(0.317)	0.268
134	11.17	0.63	0.353	0.085	(0.317)	0.268
135	11.25	0.63	0.353	0.084	(0.317)	0.268
136	11.33	0.63	0.353	0.084	(0.317)	0.269
137	11.42	0.63	0.353	0.083	(0.317)	0.269
138	11.50	0.63	0.353	0.083	(0.317)	0.270
139	11.58	0.57	0.316	0.083	(0.284)	0.233
140	11.67	0.57	0.316	0.082	(0.284)	0.233
141	11.75	0.57	0.316	0.082	(0.284)	0.234
142	11.83	0.60	0.334	0.081	(0.301)	0.253
143	11.92	0.60	0.334	0.081	(0.301)	0.253
144	12.00	0.60	0.334	0.080	(0.301)	0.254
145	12.08	0.83	0.464	0.080	(0.418)	0.384
146	12.17	0.83	0.464	0.080	(0.418)	0.384
147	12.25	0.83	0.464	0.079	(0.418)	0.385
148	12.33	0.87	0.483	0.079	(0.434)	0.404
149	12.42	0.87	0.483	0.078	(0.434)	0.404
150	12.50	0.87	0.483	0.078	(0.434)	0.404
151	12.58	0.93	0.520	0.078	(0.468)	0.442
152	12.67	0.93	0.520	0.077	(0.468)	0.442
153	12.75	0.93	0.520	0.077	(0.468)	0.443
154	12.83	0.97	0.538	0.077	(0.484)	0.462
155	12.92	0.97	0.538	0.076	(0.484)	0.462
156	13.00	0.97	0.538	0.076	(0.484)	0.462
157	13.08	1.13	0.631	0.075	(0.568)	0.556
158	13.17	1.13	0.631	0.075	(0.568)	0.556
159	13.25	1.13	0.631	0.075	(0.568)	0.556
160	13.33	1.13	0.631	0.074	(0.568)	0.557
161	13.42	1.13	0.631	0.074	(0.568)	0.557
162	13.50	1.13	0.631	0.073	(0.568)	0.558
163	13.58	0.77	0.427	0.073	(0.384)	0.354
164	13.67	0.77	0.427	0.073	(0.384)	0.354
165	13.75	0.77	0.427	0.072	(0.384)	0.355
166	13.83	0.77	0.427	0.072	(0.384)	0.355
167	13.92	0.77	0.427	0.072	(0.384)	0.355
168	14.00	0.77	0.427	0.071	(0.384)	0.356
169	14.08	0.90	0.501	0.071	(0.451)	0.430
170	14.17	0.90	0.501	0.071	(0.451)	0.431
171	14.25	0.90	0.501	0.070	(0.451)	0.431
172	14.33	0.87	0.483	0.070	(0.434)	0.413
173	14.42	0.87	0.483	0.069	(0.434)	0.413
174	14.50	0.87	0.483	0.069	(0.434)	0.413
175	14.58	0.87	0.483	0.069	(0.434)	0.414
176	14.67	0.87	0.483	0.068	(0.434)	0.414

177	14.75	0.87	0.483	0.068	(0.434)	0.414
178	14.83	0.83	0.464	0.068	(0.418)	0.396
179	14.92	0.83	0.464	0.067	(0.418)	0.397
180	15.00	0.83	0.464	0.067	(0.418)	0.397
181	15.08	0.80	0.445	0.067	(0.401)	0.379
182	15.17	0.80	0.445	0.066	(0.401)	0.379
183	15.25	0.80	0.445	0.066	(0.401)	0.379
184	15.33	0.77	0.427	0.066	(0.384)	0.361
185	15.42	0.77	0.427	0.065	(0.384)	0.362
186	15.50	0.77	0.427	0.065	(0.384)	0.362
187	15.58	0.63	0.353	0.065	(0.317)	0.288
188	15.67	0.63	0.353	0.064	(0.317)	0.288
189	15.75	0.63	0.353	0.064	(0.317)	0.289
190	15.83	0.63	0.353	0.064	(0.317)	0.289
191	15.92	0.63	0.353	0.063	(0.317)	0.289
192	16.00	0.63	0.353	0.063	(0.317)	0.290
193	16.08	0.13	0.074	0.063	(0.067)	0.012
194	16.17	0.13	0.074	0.062	(0.067)	0.012
195	16.25	0.13	0.074	0.062	(0.067)	0.012
196	16.33	0.13	0.074	0.062	(0.067)	0.013
197	16.42	0.13	0.074	0.061	(0.067)	0.013
198	16.50	0.13	0.074	0.061	(0.067)	0.013
199	16.58	0.10	0.056	(0.061)	0.050	0.006
200	16.67	0.10	0.056	(0.060)	0.050	0.006
201	16.75	0.10	0.056	(0.060)	0.050	0.006
202	16.83	0.10	0.056	(0.060)	0.050	0.006
203	16.92	0.10	0.056	(0.060)	0.050	0.006
204	17.00	0.10	0.056	(0.059)	0.050	0.006
205	17.08	0.17	0.093	0.059	(0.084)	0.034
206	17.17	0.17	0.093	0.059	(0.084)	0.034
207	17.25	0.17	0.093	0.058	(0.084)	0.034
208	17.33	0.17	0.093	0.058	(0.084)	0.035
209	17.42	0.17	0.093	0.058	(0.084)	0.035
210	17.50	0.17	0.093	0.058	(0.084)	0.035
211	17.58	0.17	0.093	0.057	(0.084)	0.036
212	17.67	0.17	0.093	0.057	(0.084)	0.036
213	17.75	0.17	0.093	0.057	(0.084)	0.036
214	17.83	0.13	0.074	0.056	(0.067)	0.018
215	17.92	0.13	0.074	0.056	(0.067)	0.018
216	18.00	0.13	0.074	0.056	(0.067)	0.018
217	18.08	0.13	0.074	0.056	(0.067)	0.019
218	18.17	0.13	0.074	0.055	(0.067)	0.019
219	18.25	0.13	0.074	0.055	(0.067)	0.019
220	18.33	0.13	0.074	0.055	(0.067)	0.020
221	18.42	0.13	0.074	0.054	(0.067)	0.020
222	18.50	0.13	0.074	0.054	(0.067)	0.020
223	18.58	0.10	0.056	(0.054)	0.050	0.006
224	18.67	0.10	0.056	(0.054)	0.050	0.006
225	18.75	0.10	0.056	(0.053)	0.050	0.006
226	18.83	0.07	0.037	(0.053)	0.033	0.004
227	18.92	0.07	0.037	(0.053)	0.033	0.004
228	19.00	0.07	0.037	(0.053)	0.033	0.004
229	19.08	0.10	0.056	(0.052)	0.050	0.006
230	19.17	0.10	0.056	(0.052)	0.050	0.006
231	19.25	0.10	0.056	(0.052)	0.050	0.006
232	19.33	0.13	0.074	0.052	(0.067)	0.023
233	19.42	0.13	0.074	0.051	(0.067)	0.023
234	19.50	0.13	0.074	0.051	(0.067)	0.023
235	19.58	0.10	0.056	(0.051)	0.050	0.006
236	19.67	0.10	0.056	(0.051)	0.050	0.006

Total soil loss = 50082.4 Cubic Feet

Peak flow rate of this hydrograph = 4.517(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0001		0.01	Q			
0+10	0.0002		0.02	Q			
0+15	0.0004		0.03	Q			
0+20	0.0006		0.03	Q			
0+25	0.0009		0.04	Q			
0+30	0.0012		0.04	Q			
0+35	0.0015		0.04	Q			
0+40	0.0019		0.05	Q			
0+45	0.0022		0.05	Q			
0+50	0.0025		0.05	Q			
0+55	0.0029		0.06	Q			
1+ 0	0.0033		0.06	Q			
1+ 5	0.0037		0.06	Q			
1+10	0.0040		0.05	Q			
1+15	0.0043		0.05	Q			
1+20	0.0047		0.05	Q			
1+25	0.0050		0.05	Q			
1+30	0.0053		0.05	Q			
1+35	0.0056		0.05	Q			
1+40	0.0059		0.05	Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+45	0.0062	0.05	Q	|	|	|
1+50	0.0065	0.05	Q	|	|	|
1+55	0.0069	0.06	Q	|	|	|
2+ 0	0.0074	0.06	Q	|	|	|
2+ 5	0.0078	0.06	Q	|	|	|
2+10	0.0082	0.06	Q	|	|	|
2+15	0.0086	0.06	Q	|	|	|
2+20	0.0090	0.06	Q	|	|	|
2+25	0.0094	0.06	Q	|	|	|
2+30	0.0098	0.06	Q	|	|	|
2+35	0.0103	0.06	Q	|	|	|
2+40	0.0108	0.07	Q	|	|	|
2+45	0.0113	0.07	Q	|	|	|
2+50	0.0118	0.08	Q	|	|	|
2+55	0.0123	0.08	Q	|	|	|
3+ 0	0.0128	0.08	Q	|	|	|
3+ 5	0.0134	0.08	Q	|	|	|
3+10	0.0139	0.08	Q	|	|	|
3+15	0.0144	0.08	Q	|	|	|
3+20	0.0149	0.08	Q	|	|	|
3+25	0.0154	0.08	Q	|	|	|
3+30	0.0159	0.08	Q	|	|	|
3+35	0.0165	0.08	Q	|	|	|
3+40	0.0170	0.08	Q	|	|	|
3+45	0.0175	0.08	Q	|	|	|
3+50	0.0180	0.08	Q	|	|	|
3+55	0.0186	0.09	Q	|	|	|
4+ 0	0.0193	0.09	Q	|	|	|
4+ 5	0.0199	0.09	Q	|	|	|
4+10	0.0205	0.09	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+15	0.0211	0.09	Q	|	|	|
4+20	0.0218	0.09	Q	|	|	|
4+25	0.0225	0.10	Q	|	|	|
4+30	0.0232	0.10	Q	|	|	|
4+35	0.0239	0.11	Q	|	|	|
4+40	0.0246	0.11	Q	|	|	|
4+45	0.0254	0.11	Q	|	|	|
4+50	0.0263	0.14	Q	|	|	|
4+55	0.0277	0.20	Q	|	|	|
5+ 0	0.0293	0.23	Q	|	|	|
5+ 5	0.0306	0.20	Q	|	|	|
5+10	0.0314	0.12	Q	|	|	|
5+15	0.0321	0.10	Q	|	|	|
5+20	0.0328	0.10	Q	|	|	|
5+25	0.0335	0.10	Q	|	|	|
5+30	0.0342	0.11	Q	|	|	|
5+35	0.0352	0.15	Q	|	|	|
5+40	0.0369	0.24	Q	|	|	|
5+45	0.0387	0.26	VQ	|	|	|
5+50	0.0405	0.27	VQ	|	|	|
5+55	0.0424	0.28	VQ	|	|	|
6+ 0	0.0444	0.28	VQ	|	|	|
6+ 5	0.0466	0.32	VQ	|	|	|
6+10	0.0494	0.41	|Q	|	|	|
6+15	0.0524	0.44	|Q	|	|	|
6+20	0.0555	0.45	|Q	|	|	|
6+25	0.0586	0.45	|Q	|	|	|
6+30	0.0617	0.46	|Q	|	|	|
6+35	0.0652	0.50	|Q	|	|	|
6+40	0.0692	0.59	|VQ	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+45	0.0734	0.61	|VQ	|	|	|
6+50	0.0777	0.62	|VQ	|	|	|
6+55	0.0820	0.63	|VQ	|	|	|
7+ 0	0.0863	0.63	|VQ	|	|	|
7+ 5	0.0907	0.63	|VQ	|	|	|
7+10	0.0951	0.64	|VQ	|	|	|
7+15	0.0995	0.64	| Q	|	|	|
7+20	0.1042	0.68	| Q	|	|	|
7+25	0.1095	0.77	| VQ	|	|	|
7+30	0.1150	0.80	| VQ	|	|	|
7+35	0.1208	0.84	| VQ	|	|	|
7+40	0.1273	0.93	| VQ	|	|	|
7+45	0.1339	0.96	| VQ	|	|	|
7+50	0.1408	1.01	| V Q	|	|	|
7+55	0.1483	1.09	| VQ	|	|	|
8+ 0	0.1561	1.12	| VQ	|	|	|
8+ 5	0.1644	1.21	| VQ	|	|	|
8+10	0.1739	1.38	| V Q	|	|	|
8+15	0.1837	1.43	| V Q	|	|	|
8+20	0.1936	1.44	| V Q	|	|	|
8+25	0.2036	1.45	| VQ	|	|	|
8+30	0.2136	1.45	| VQ	|	|	|
8+35	0.2239	1.49	| VQ	|	|	|
8+40	0.2347	1.58	| V Q	|	|	|
8+45	0.2458	1.61	| VQ	|	|	|
8+50	0.2572	1.65	| VQ	|	|	|
8+55	0.2692	1.74	| VQ	|	|	|
9+ 0	0.2814	1.77	| V Q	|	|	|
9+ 5	0.2941	1.85	| VQ	|	|	|
9+10	0.3081	2.02	| V Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

9+15	0.3223	2.07	|	V Q	|	|	|
9+20	0.3370	2.12	|	V Q	|	|	|
9+25	0.3522	2.22	|	VQ	|	|	|
9+30	0.3677	2.24	|	VQ	|	|	|
9+35	0.3834	2.29	|	V Q	|	|	|
9+40	0.3998	2.38	|	VQ	|	|	|
9+45	0.4163	2.40	|	VQ	|	|	|
9+50	0.4332	2.45	|	VQ	|	|	|
9+55	0.4507	2.54	|	VQ	|	|	|
10+ 0	0.4683	2.56	|	VQ	|	|	|
10+ 5	0.4843	2.31	|	Q	|	|	|
10+10	0.4962	1.73	|	Q	V	|	|
10+15	0.5071	1.59	|	Q	V	|	|
10+20	0.5178	1.55	|	Q	V	|	|
10+25	0.5284	1.54	|	Q	V	|	|
10+30	0.5390	1.54	|	Q	|V	|	|
10+35	0.5509	1.73	|	Q	|V	|	|
10+40	0.5657	2.15	|	Q	|V	|	|
10+45	0.5813	2.26	|	Q	|V	|	|
10+50	0.5971	2.30	|	Q	| V	|	|
10+55	0.6130	2.31	|	Q	| V	|	|
11+ 0	0.6289	2.31	|	Q	| V	|	|
11+ 5	0.6446	2.28	|	Q	| V	|	|
11+10	0.6598	2.20	|	Q	| V	|	|
11+15	0.6748	2.18	|	Q	| V	|	|
11+20	0.6898	2.18	|	Q	| V	|	|
11+25	0.7048	2.18	|	Q	| V	|	|
11+30	0.7199	2.18	|	Q	| V	|	|
11+35	0.7344	2.11	|	Q	| V	|	|
11+40	0.7478	1.95	|	Q	| V	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+45	0.7610	1.91	|	Q	|	V	|	|
11+50	0.7743	1.94	|	Q	|	V	|	|
11+55	0.7882	2.02	|	Q	|	V	|	|
12+ 0	0.8023	2.04	|	Q	|	V	|	|
12+ 5	0.8182	2.31	|	Q	|	V	|	|
12+10	0.8382	2.91	|	|	Q	V	|	|
12+15	0.8593	3.06	|	|	Q	V	|	|
12+20	0.8809	3.14	|	|	Q	V	|	|
12+25	0.9032	3.24	|	|	Q	V	|	|
12+30	0.9257	3.27	|	|	Q	V	|	|
12+35	0.9488	3.35	|	|	Q	V	|	|
12+40	0.9731	3.52	|	|	Q	V	|	|
12+45	0.9977	3.57	|	|	Q	V	|	|
12+50	1.0226	3.62	|	|	Q	V	|	|
12+55	1.0482	3.71	|	|	Q	|	V	|
13+ 0	1.0739	3.74	|	|	Q	|	V	|
13+ 5	1.1010	3.93	|	|	Q	|	V	|
13+10	1.1310	4.36	|	|	Q	|	V	|
13+15	1.1618	4.47	|	|	Q	|	V	|
13+20	1.1928	4.50	|	|	Q	|	V	|
13+25	1.2239	4.51	|	|	Q	|	V	|
13+30	1.2550	4.52	|	|	Q	|	V	|
13+35	1.2833	4.11	|	|	Q	|	V	|
13+40	1.3052	3.19	|	|	Q	|	V	|
13+45	1.3256	2.96	|	|	Q	|	V	|
13+50	1.3456	2.90	|	|	Q	|	V	|
13+55	1.3654	2.88	|	|	Q	|	V	|
14+ 0	1.3853	2.88	|	|	Q	|	V	|
14+ 5	1.4062	3.03	|	|	Q	|	V	|
14+10	1.4294	3.37	|	|	Q	|	V	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

14+15	1.4532	3.46	|	|	Q	|	V|
14+20	1.4769	3.45	|	|	Q	|	V
14+25	1.5002	3.37	|	|	Q	|	V
14+30	1.5233	3.36	|	|	Q	|	|V
14+35	1.5464	3.35	|	|	Q	|	|V
14+40	1.5695	3.36	|	|	Q	|	|V
14+45	1.5926	3.36	|	|	Q	|	|V
14+50	1.6155	3.32	|	|	Q	|	|V
14+55	1.6378	3.24	|	|	Q	|	|V
15+ 0	1.6600	3.22	|	|	Q	|	|V
15+ 5	1.6819	3.18	|	|	Q	|	|V
15+10	1.7033	3.10	|	|	Q	|	|V
15+15	1.7245	3.08	|	|	Q	|	|V
15+20	1.7455	3.04	|	|	Q	|	|V
15+25	1.7658	2.96	|	|	Q	|	|V
15+30	1.7861	2.94	|	|	Q	|	|V
15+35	1.8053	2.79	|	|	Q	|	|V
15+40	1.8222	2.45	|	Q|	|	|	|V
15+45	1.8385	2.37	|	Q|	|	|	|V
15+50	1.8547	2.35	|	Q|	|	|	|V
15+55	1.8708	2.35	|	Q|	|	|	|V
16+ 0	1.8870	2.35	|	Q|	|	|	|V
16+ 5	1.8993	1.79	|	Q	|	|	|V
16+10	1.9030	0.54	|	Q	|	|	|V
16+15	1.9045	0.22	Q	|	|	|	|V
16+20	1.9054	0.13	Q	|	|	|	|V
16+25	1.9061	0.11	Q	|	|	|	|V
16+30	1.9069	0.10	Q	|	|	|	|V
16+35	1.9075	0.09	Q	|	|	|	|V
16+40	1.9079	0.06	Q	|	|	|	|V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	16+45	1.9082	0.05	Q	|	|	|	V
|	16+50	1.9085	0.05	Q	|	|	|	V
|	16+55	1.9088	0.05	Q	|	|	|	V
|	17+ 0	1.9091	0.05	Q	|	|	|	V
|	17+ 5	1.9098	0.10	Q	|	|	|	V
|	17+10	1.9114	0.23	Q	|	|	|	
V|	17+15	1.9133	0.26	|Q	|	|	|	
V|	17+20	1.9152	0.28	|Q	|	|	|	
V|	17+25	1.9171	0.28	|Q	|	|	|	
V|	17+30	1.9190	0.28	|Q	|	|	|	
V|	17+35	1.9210	0.29	|Q	|	|	|	
V|	17+40	1.9230	0.29	|Q	|	|	|	
V|	17+45	1.9250	0.29	|Q	|	|	|	
V|	17+50	1.9268	0.26	|Q	|	|	|	
V|	17+55	1.9280	0.17	Q	|	|	|	
V|	18+ 0	1.9290	0.16	Q	|	|	|	
V|	18+ 5	1.9301	0.15	Q	|	|	|	
V|	18+10	1.9311	0.15	Q	|	|	|	
V|	18+15	1.9322	0.15	Q	|	|	|	
V|	18+20	1.9333	0.16	Q	|	|	|	
V|	18+25	1.9343	0.16	Q	|	|	|	
V|	18+30	1.9354	0.16	Q	|	|	|	
V|	18+35	1.9364	0.13	Q	|	|	|	
V|	18+40	1.9368	0.07	Q	|	|	|	
V|	18+45	1.9372	0.05	Q	|	|	|	
V|	18+50	1.9375	0.04	Q	|	|	|	
V|	18+55	1.9377	0.03	Q	|	|	|	
V|	19+ 0	1.9379	0.03	Q	|	|	|	
V|	19+ 5	1.9382	0.03	Q	|	|	|	
V|	19+10	1.9384	0.04	Q	|	|	|	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	19+15	1.9388	0.04	Q	|	|	|
V|	19+20	1.9393	0.08	Q	|	|	|
V|	19+25	1.9404	0.16	Q	|	|	|
V|	19+30	1.9416	0.18	Q	|	|	|
V|	19+35	1.9426	0.15	Q	|	|	|
V|	19+40	1.9431	0.07	Q	|	|	|
V|	19+45	1.9435	0.05	Q	|	|	|
V|	19+50	1.9438	0.04	Q	|	|	|
V|	19+55	1.9440	0.03	Q	|	|	|
V|	20+ 0	1.9442	0.03	Q	|	|	|
V|	20+ 5	1.9445	0.04	Q	|	|	|
V|	20+10	1.9448	0.05	Q	|	|	|
V|	20+15	1.9451	0.05	Q	|	|	|
V|	20+20	1.9455	0.05	Q	|	|	|
V|	20+25	1.9459	0.05	Q	|	|	|
V|	20+30	1.9463	0.06	Q	|	|	|
V|	20+35	1.9467	0.06	Q	|	|	|
V|	20+40	1.9471	0.06	Q	|	|	|
V|	20+45	1.9475	0.06	Q	|	|	|
V|	20+50	1.9479	0.05	Q	|	|	|
V|	20+55	1.9481	0.04	Q	|	|	|
V|	21+ 0	1.9483	0.03	Q	|	|	|
V|	21+ 5	1.9486	0.04	Q	|	|	|
V|	21+10	1.9490	0.06	Q	|	|	|
V|	21+15	1.9495	0.07	Q	|	|	|
V|	21+20	1.9499	0.06	Q	|	|	|
V|	21+25	1.9502	0.04	Q	|	|	|
V|	21+30	1.9504	0.03	Q	|	|	|
V|	21+35	1.9507	0.04	Q	|	|	|
V|	21+40	1.9512	0.07	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+45	1.9517	0.08	Q	|	|	|
V|	21+50	1.9522	0.07	Q	|	|	|
V|	21+55	1.9524	0.04	Q	|	|	|
V|	22+ 0	1.9527	0.03	Q	|	|	|
V|	22+ 5	1.9530	0.04	Q	|	|	|
V|	22+10	1.9535	0.08	Q	|	|	|
V|	22+15	1.9541	0.08	Q	|	|	|
V|	22+20	1.9546	0.07	Q	|	|	|
V|	22+25	1.9548	0.04	Q	|	|	|
V|	22+30	1.9551	0.03	Q	|	|	|
V|	22+35	1.9553	0.03	Q	|	|	|
V|	22+40	1.9555	0.03	Q	|	|	|
V|	22+45	1.9557	0.03	Q	|	|	|
V|	22+50	1.9559	0.03	Q	|	|	|
V|	22+55	1.9561	0.03	Q	|	|	|
V|	23+ 0	1.9563	0.03	Q	|	|	|
V|	23+ 5	1.9565	0.03	Q	|	|	|
V|	23+10	1.9567	0.03	Q	|	|	|
V|	23+15	1.9569	0.03	Q	|	|	|
V|	23+20	1.9571	0.03	Q	|	|	|
V|	23+25	1.9574	0.03	Q	|	|	|
V|	23+30	1.9576	0.03	Q	|	|	|
V|	23+35	1.9578	0.03	Q	|	|	|
V|	23+40	1.9580	0.03	Q	|	|	|
V|	23+45	1.9582	0.03	Q	|	|	|
V|	23+50	1.9584	0.03	Q	|	|	|
V|	23+55	1.9586	0.03	Q	|	|	|
V|	24+ 0	1.9588	0.03	Q	|	|	|
V|	24+ 5	1.9590	0.02	Q	|	|	|
V|	24+10	1.9590	0.01	Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	24+15	1.9590	0.00	Q	|	|	|
V|	24+20	1.9590	0.00	Q	|	|	|
V|	24+25	1.9590	0.00	Q	|	|	|

Proposed Condition SCS Hydrograph Runoff

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post12.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 0.47 1.86

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.00	1.19	4.76

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 0.466(In)
 Area Averaged 100-Year Rainfall = 1.190(In)

Point rain (area averaged) = 0.466(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 0.466(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.000	69.00	0.650
Total Area Entered = 4.00(Ac.)		

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						
Sum (F) =						
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

 Slope of intensity-duration curve for a 1 hour storm =0.5500

 U n i t H y d r o g r a p h
 FOOTHILL S-Curve

 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	2.200
2	0.167	550.195	1.717
3	0.250	825.292	0.115
Sum = 100.000		Sum=	4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective

Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.185	(0.155)	0.070	0.114
2	0.17	4.20	0.235	(0.155)	0.089	0.146
3	0.25	4.40	0.246	(0.155)	0.093	0.153
4	0.33	4.80	0.268	(0.155)	0.102	0.166
5	0.42	5.20	0.291	(0.155)	0.110	0.180
6	0.50	6.20	0.347	(0.155)	0.132	0.215
7	0.58	6.80	0.380	(0.155)	0.144	0.236
8	0.67	8.80	0.492	0.155	(0.187)	0.337
9	0.75	13.90	0.777	0.155	(0.295)	0.623
10	0.83	31.40	1.756	0.155	(0.667)	1.601
11	0.92	7.20	0.403	(0.155)	0.153	0.250
12	1.00	3.80	0.212	(0.155)	0.081	0.132

(Loss Rate Not Used)
 Sum = 100.0 Sum = 4.2
 Flood volume = Effective rainfall 0.35(In)
 times area 4.0(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.12(In)
 Total soil loss = 0.040(Ac.Ft)
 Total rainfall = 0.47(In)
 Flood volume = 5024.3 Cubic Feet
 Total soil loss = 1741.7 Cubic Feet

 -- Peak flow rate of this hydrograph = 4.632(CFS)

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 1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 -- Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0017	0.25	VQ	|	|	|
0+10	0.0053	0.52	|VQ	|	|	|
0+15	0.0094	0.60	| QV	|	|	|
0+20	0.0139	0.64	| Q V	|	|	|
0+25	0.0187	0.70	| Q V	|	|	|
0+30	0.0242	0.80	| Q V	|	|	|
0+35	0.0305	0.91	| Q V	|	|	|
0+40	0.0385	1.17	| Q V	|	|	|

|	0+45	0.0522	1.98	|	Q	|	V	|	|
|	0+50	0.0841	4.63	|		|	Q	|	V|
|	0+55	0.1073	3.37	|		|	Q	|	|
	1+ 0	0.1135	0.90		Q				V
V	1+ 5	0.1152	0.25		Q				
V	1+10	0.1153	0.02		Q				
V									

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post15.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--

Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
(Ft.)
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Mi.
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

|	0+45	0.0754	2.92	|	|Q	V	|	
|	0+50	0.1204	6.54	|	|		|	Q V|
	0+55	0.1536	4.82			Q		V
V	1+ 0	0.1628	1.33		Q			
V	1+ 5	0.1652	0.35	Q				
V	1+10	0.1654	0.02	Q				

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

|	0+45	0.0947	3.64	|	|	Q	V	|	|
|	0+50	0.1498	7.99	|	|			|	V|Q
	0+55	0.1905	5.92						Q
	1+ 0	0.2019	1.66		Q				
V	1+ 5	0.2049	0.43		Q				
V	1+10	0.2050	0.02	Q					
V									

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post1100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--

Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
(Ft.)
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Mi.
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 0.47 1.86

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.00	1.19	4.76

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.466(In)
 Area Averaged 100-Year Rainfall = 1.190(In)

Point rain (area averaged) = 1.190(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.190(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.000	69.00	0.650
Total Area Entered = 4.00(Ac.)		

RI (In/Hr)	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	84.4	0.194	0.650	0.080	1.000	
0.080						
Sum (F) =						
0.080						

Area averaged mean soil loss (F) (In/Hr) = 0.080
 Minimum soil loss rate ((In/Hr)) = 0.040
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

 Slope of intensity-duration curve for a 1 hour storm =0.5500

 U n i t H y d r o g r a p h
 F O O T H I L L S - C u r v e

 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

|	0+45	0.1834	6.31	|	|	Q	V|	|	
|	0+50	0.2736	13.10	|	|		|	Q	V|
	0+55	0.3416	9.87				Q		V
V	1+ 0	0.3633	3.15		Q				
V	1+ 5	0.3695	0.90		Q				
V	1+10	0.3698	0.05	Q					

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post32.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--

Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
(Ft.)
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Mi.
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 0.80 3.20

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 1.89 7.56

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 0.799(In)
 Area Averaged 100-Year Rainfall = 1.890(In)

Point rain (area averaged) = 0.799(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 0.799(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						Sum (F) =
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time Pattern Storm Rain Loss rate(In./Hr) Effective

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	1.30	0.125	(0.155)	0.047	0.077
2	0.17	1.30	0.125	(0.155)	0.047	0.077
3	0.25	1.10	0.105	(0.155)	0.040	0.065
4	0.33	1.50	0.144	(0.155)	0.055	0.089
5	0.42	1.50	0.144	(0.155)	0.055	0.089
6	0.50	1.80	0.173	(0.155)	0.066	0.107
7	0.58	1.50	0.144	(0.155)	0.055	0.089
8	0.67	1.80	0.173	(0.155)	0.066	0.107
9	0.75	1.80	0.173	(0.155)	0.066	0.107
10	0.83	1.50	0.144	(0.155)	0.055	0.089
11	0.92	1.60	0.153	(0.155)	0.058	0.095
12	1.00	1.80	0.173	(0.155)	0.066	0.107
13	1.08	2.20	0.211	(0.155)	0.080	0.131
14	1.17	2.20	0.211	(0.155)	0.080	0.131
15	1.25	2.20	0.211	(0.155)	0.080	0.131
16	1.33	2.00	0.192	(0.155)	0.073	0.119
17	1.42	2.60	0.249	(0.155)	0.095	0.155
18	1.50	2.70	0.259	(0.155)	0.098	0.161
19	1.58	2.40	0.230	(0.155)	0.087	0.143
20	1.67	2.70	0.259	(0.155)	0.098	0.161
21	1.75	3.30	0.316	(0.155)	0.120	0.196
22	1.83	3.10	0.297	(0.155)	0.113	0.184
23	1.92	2.90	0.278	(0.155)	0.106	0.172
24	2.00	3.00	0.288	(0.155)	0.109	0.178
25	2.08	3.10	0.297	(0.155)	0.113	0.184
26	2.17	4.20	0.403	(0.155)	0.153	0.250
27	2.25	5.00	0.479	0.155	(0.182)	0.325
28	2.33	3.50	0.336	(0.155)	0.128	0.208
29	2.42	6.80	0.652	0.155	(0.248)	0.497
30	2.50	7.30	0.700	0.155	(0.266)	0.545
31	2.58	8.20	0.786	0.155	(0.299)	0.631
32	2.67	5.90	0.566	0.155	(0.215)	0.411
33	2.75	2.00	0.192	(0.155)	0.073	0.119
34	2.83	1.80	0.173	(0.155)	0.066	0.107
35	2.92	1.80	0.173	(0.155)	0.066	0.107
36	3.00	0.60	0.058	(0.155)	0.022	0.036

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.4

Flood volume = Effective rainfall 0.53(In)
times area 4.0(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 0.27(In)
Total soil loss = 0.089(Ac.Ft)
Total rainfall = 0.80(In)
Flood volume = 7720.4 Cubic Feet
Total soil loss = 3880.9 Cubic Feet

Peak flow rate of this hydrograph = 2.383(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

--
 Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0012	0.17	Q				
0+10	0.0033	0.30	VQ				
0+15	0.0052	0.29	|Q				
0+20	0.0074	0.32	|Q				
0+25	0.0099	0.36	|QV				
0+30	0.0126	0.40	|QV				
0+35	0.0153	0.39	|Q V				
0+40	0.0181	0.40	|Q V				
0+45	0.0210	0.43	|Q V				
0+50	0.0237	0.39	|Q V				
0+55	0.0263	0.37	|Q V				
1+ 0	0.0291	0.41	|Q V				
1+ 5	0.0324	0.48	|Q V				
1+10	0.0361	0.52	| Q V				
1+15	0.0397	0.53	| Q V				
1+20	0.0431	0.50	| Q V				
1+25	0.0470	0.56	| Q V				
1+30	0.0514	0.63	| Q |V				
1+35	0.0555	0.61	| Q | V				
1+40	0.0598	0.62	| Q | V				
1+45	0.0648	0.72	| Q | V				
1+50	0.0700	0.76	| Q | V				
1+55	0.0750	0.72	| Q | V				
2+ 0	0.0798	0.71	| Q | V				
2+ 5	0.0849	0.73	| Q | V				
2+10	0.0910	0.89	| Q | V				
2+15	0.0990	1.16	| Q | V				
2+20	0.1062	1.04	| Q | V				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+25	0.1165	1.49	|	Q	|	|	|	V	|
|	2+30	0.1308	2.08	|		Q	|	|		V|
|	2+35	0.1472	2.38	|		Q|	|	|		V
|	2+40	0.1613	2.05	|		Q	|	|		V
|	2+45	0.1685	1.04	|	Q	|	|	|		V
|	2+50	0.1718	0.49	|	Q	|	|	|		V
|	2+55	0.1748	0.43	|	Q	|	|	|		
V|	3+ 0	0.1767	0.27	|	Q	|	|	|		
V|	3+ 5	0.1772	0.07	|	Q	|	|	|		
V|	3+10	0.1772	0.00	|	Q	|	|	|		
V										

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post35.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 0.80 3.20

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 1.89 7.56

STORM EVENT (YEAR) = 5.00
 Area Averaged 2-Year Rainfall = 0.799(In)
 Area Averaged 100-Year Rainfall = 1.890(In)

Point rain (area averaged) = 1.055(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.055(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						Sum (F) =
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)	Effective
-----------	---------	------------	-------------------	-----------

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	1.30	0.165	(0.155)	0.063	0.102
2	0.17	1.30	0.165	(0.155)	0.063	0.102
3	0.25	1.10	0.139	(0.155)	0.053	0.086
4	0.33	1.50	0.190	(0.155)	0.072	0.118
5	0.42	1.50	0.190	(0.155)	0.072	0.118
6	0.50	1.80	0.228	(0.155)	0.087	0.141
7	0.58	1.50	0.190	(0.155)	0.072	0.118
8	0.67	1.80	0.228	(0.155)	0.087	0.141
9	0.75	1.80	0.228	(0.155)	0.087	0.141
10	0.83	1.50	0.190	(0.155)	0.072	0.118
11	0.92	1.60	0.202	(0.155)	0.077	0.126
12	1.00	1.80	0.228	(0.155)	0.087	0.141
13	1.08	2.20	0.278	(0.155)	0.106	0.173
14	1.17	2.20	0.278	(0.155)	0.106	0.173
15	1.25	2.20	0.278	(0.155)	0.106	0.173
16	1.33	2.00	0.253	(0.155)	0.096	0.157
17	1.42	2.60	0.329	(0.155)	0.125	0.204
18	1.50	2.70	0.342	(0.155)	0.130	0.212
19	1.58	2.40	0.304	(0.155)	0.115	0.188
20	1.67	2.70	0.342	(0.155)	0.130	0.212
21	1.75	3.30	0.418	0.155	(0.159)	0.263
22	1.83	3.10	0.392	(0.155)	0.149	0.243
23	1.92	2.90	0.367	(0.155)	0.139	0.228
24	2.00	3.00	0.380	(0.155)	0.144	0.235
25	2.08	3.10	0.392	(0.155)	0.149	0.243
26	2.17	4.20	0.531	0.155	(0.202)	0.377
27	2.25	5.00	0.633	0.155	(0.240)	0.478
28	2.33	3.50	0.443	0.155	(0.168)	0.288
29	2.42	6.80	0.860	0.155	(0.327)	0.706
30	2.50	7.30	0.924	0.155	(0.351)	0.769
31	2.58	8.20	1.038	0.155	(0.394)	0.883
32	2.67	5.90	0.747	0.155	(0.284)	0.592
33	2.75	2.00	0.253	(0.155)	0.096	0.157
34	2.83	1.80	0.228	(0.155)	0.087	0.141
35	2.92	1.80	0.228	(0.155)	0.087	0.141
36	3.00	0.60	0.076	(0.155)	0.029	0.047

(Loss Rate Not Used)

Sum = 100.0 Sum = 8.7

Flood volume = Effective rainfall 0.73(In)
times area 4.0(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 0.33(In)
Total soil loss = 0.109(Ac.Ft)
Total rainfall = 1.05(In)
Flood volume = 10567.3 Cubic Feet
Total soil loss = 4744.3 Cubic Feet

Peak flow rate of this hydrograph = 3.345(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

--
 Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0015	0.22	Q				
0+10	0.0043	0.40	VQ				
0+15	0.0069	0.38	|Q				
0+20	0.0098	0.42	|Q				
0+25	0.0130	0.47	|QV				
0+30	0.0166	0.53	| Q				
0+35	0.0202	0.52	| QV				
0+40	0.0238	0.53	| QV				
0+45	0.0277	0.57	| Q V				
0+50	0.0313	0.52	| Q V				
0+55	0.0347	0.49	|Q V				
1+ 0	0.0384	0.54	| Q V				
1+ 5	0.0428	0.64	| Q V				
1+10	0.0476	0.69	| Q V				
1+15	0.0524	0.70	| Q V				
1+20	0.0569	0.66	| Q V				
1+25	0.0620	0.74	| Q V				
1+30	0.0678	0.83	| Q |V				
1+35	0.0733	0.80	| Q | V				
1+40	0.0789	0.81	| Q | V				
1+45	0.0855	0.96	| Q | V				
1+50	0.0925	1.01	| Q | V				
1+55	0.0990	0.95	| Q | V				
2+ 0	0.1055	0.94	| Q | V				
2+ 5	0.1121	0.97	| Q | V				
2+10	0.1209	1.27	| Q | V				
2+15	0.1328	1.73	| Q | V				
2+20	0.1431	1.50	| Q | V				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+25	0.1576	2.10	|	Q	|	V	|
|	2+30	0.1779	2.94	|	|	Q	|	V
|	2+35	0.2009	3.35	|	|	Q	|	V
|	2+40	0.2209	2.91	|	|	Q	|	V
|	2+45	0.2310	1.46	|	Q	|	|	V
|	2+50	0.2355	0.65	|	Q	|	|	V
|	2+55	0.2394	0.57	|	Q	|	|	
V|	3+ 0	0.2419	0.36	|	Q	|	|	
V|	3+ 5	0.2426	0.10	Q	|	|	|	
V|	3+10	0.2426	0.01	Q	|	|	|	
V								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post310.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 0.80 3.20

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 1.89 7.56

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.799(In)
 Area Averaged 100-Year Rainfall = 1.890(In)

Point rain (area averaged) = 1.248(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.248(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						Sum (F) =
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)	Effective
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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	1.30	0.195	(0.155)	0.074	0.121
2	0.17	1.30	0.195	(0.155)	0.074	0.121
3	0.25	1.10	0.165	(0.155)	0.063	0.102
4	0.33	1.50	0.225	(0.155)	0.085	0.139
5	0.42	1.50	0.225	(0.155)	0.085	0.139
6	0.50	1.80	0.270	(0.155)	0.102	0.167
7	0.58	1.50	0.225	(0.155)	0.085	0.139
8	0.67	1.80	0.270	(0.155)	0.102	0.167
9	0.75	1.80	0.270	(0.155)	0.102	0.167
10	0.83	1.50	0.225	(0.155)	0.085	0.139
11	0.92	1.60	0.240	(0.155)	0.091	0.149
12	1.00	1.80	0.270	(0.155)	0.102	0.167
13	1.08	2.20	0.329	(0.155)	0.125	0.204
14	1.17	2.20	0.329	(0.155)	0.125	0.204
15	1.25	2.20	0.329	(0.155)	0.125	0.204
16	1.33	2.00	0.299	(0.155)	0.114	0.186
17	1.42	2.60	0.389	(0.155)	0.148	0.241
18	1.50	2.70	0.404	(0.155)	0.154	0.251
19	1.58	2.40	0.359	(0.155)	0.137	0.223
20	1.67	2.70	0.404	(0.155)	0.154	0.251
21	1.75	3.30	0.494	0.155	(0.188)	0.339
22	1.83	3.10	0.464	0.155	(0.176)	0.309
23	1.92	2.90	0.434	0.155	(0.165)	0.280
24	2.00	3.00	0.449	0.155	(0.171)	0.295
25	2.08	3.10	0.464	0.155	(0.176)	0.309
26	2.17	4.20	0.629	0.155	(0.239)	0.474
27	2.25	5.00	0.749	0.155	(0.285)	0.594
28	2.33	3.50	0.524	0.155	(0.199)	0.369
29	2.42	6.80	1.018	0.155	(0.387)	0.864
30	2.50	7.30	1.093	0.155	(0.415)	0.938
31	2.58	8.20	1.228	0.155	(0.467)	1.073
32	2.67	5.90	0.883	0.155	(0.336)	0.729
33	2.75	2.00	0.299	(0.155)	0.114	0.186
34	2.83	1.80	0.270	(0.155)	0.102	0.167
35	2.92	1.80	0.270	(0.155)	0.102	0.167
36	3.00	0.60	0.090	(0.155)	0.034	0.056

(Loss Rate Not Used)

Sum = 100.0 Sum = 10.6

Flood volume = Effective rainfall 0.89(In)
times area 4.0(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
Total soil loss = 0.36(In)
Total soil loss = 0.121(Ac.Ft)
Total rainfall = 1.25(In)
Flood volume = 12863.2 Cubic Feet
Total soil loss = 5255.2 Cubic Feet

Peak flow rate of this hydrograph = 4.073(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

--
 Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0018	0.27	VQ				
0+10	0.0051	0.47	VQ				
0+15	0.0082	0.45	|Q				
0+20	0.0116	0.50	|Q				
0+25	0.0154	0.56	| Q				
0+30	0.0197	0.62	| Q				
0+35	0.0239	0.61	| QV				
0+40	0.0282	0.63	| QV				
0+45	0.0328	0.67	| Q V				
0+50	0.0371	0.61	| Q V				
0+55	0.0411	0.59	| Q V				
1+ 0	0.0455	0.64	| Q V				
1+ 5	0.0507	0.75	| Q V				
1+10	0.0563	0.82	| Q V				
1+15	0.0620	0.82	| Q V				
1+20	0.0674	0.78	| Q V				
1+25	0.0734	0.87	| Q V				
1+30	0.0802	0.99	| Q V				
1+35	0.0867	0.95	| Q |V				
1+40	0.0934	0.96	| Q | V				
1+45	0.1017	1.20	| Q | V				
1+50	0.1106	1.29	| Q | V				
1+55	0.1187	1.19	| Q | V				
2+ 0	0.1267	1.16	| Q | V				
2+ 5	0.1351	1.22	| Q | V				
2+10	0.1462	1.61	| Q | V				
2+15	0.1611	2.16	| Q | V				
2+20	0.1741	1.89	| Q | V				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+25	0.1920	2.60	|	Q	|	V	|
|	2+30	0.2167	3.59	|		|	Q	|
|	2+35	0.2448	4.07	|		|	Q	|
|	2+40	0.2693	3.55	|		|	Q	|
|	2+45	0.2815	1.78	|	Q	|		|
|	2+50	0.2869	0.77	|	Q	|		|
|	2+55	0.2915	0.68	|	Q	|		|
V	3+ 0	0.2945	0.43		Q			
V	3+ 5	0.2953	0.11		Q			
V	3+10	0.2953	0.01		Q			
V								

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--

Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
(Ft.)
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Mi.
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	1.30	0.295	0.080	(0.112)	0.214
2	0.17	1.30	0.295	0.080	(0.112)	0.214
3	0.25	1.10	0.249	0.080	(0.095)	0.169
4	0.33	1.50	0.340	0.080	(0.129)	0.260
5	0.42	1.50	0.340	0.080	(0.129)	0.260
6	0.50	1.80	0.408	0.080	(0.155)	0.328
7	0.58	1.50	0.340	0.080	(0.129)	0.260
8	0.67	1.80	0.408	0.080	(0.155)	0.328
9	0.75	1.80	0.408	0.080	(0.155)	0.328
10	0.83	1.50	0.340	0.080	(0.129)	0.260
11	0.92	1.60	0.363	0.080	(0.138)	0.282
12	1.00	1.80	0.408	0.080	(0.155)	0.328
13	1.08	2.20	0.499	0.080	(0.190)	0.419
14	1.17	2.20	0.499	0.080	(0.190)	0.419
15	1.25	2.20	0.499	0.080	(0.190)	0.419
16	1.33	2.00	0.454	0.080	(0.172)	0.373
17	1.42	2.60	0.590	0.080	(0.224)	0.509
18	1.50	2.70	0.612	0.080	(0.233)	0.532
19	1.58	2.40	0.544	0.080	(0.207)	0.464
20	1.67	2.70	0.612	0.080	(0.233)	0.532
21	1.75	3.30	0.748	0.080	(0.284)	0.668
22	1.83	3.10	0.703	0.080	(0.267)	0.623
23	1.92	2.90	0.658	0.080	(0.250)	0.577
24	2.00	3.00	0.680	0.080	(0.259)	0.600
25	2.08	3.10	0.703	0.080	(0.267)	0.623
26	2.17	4.20	0.953	0.080	(0.362)	0.872
27	2.25	5.00	1.134	0.080	(0.431)	1.054
28	2.33	3.50	0.794	0.080	(0.302)	0.713
29	2.42	6.80	1.542	0.080	(0.586)	1.462
30	2.50	7.30	1.656	0.080	(0.629)	1.575
31	2.58	8.20	1.860	0.080	(0.707)	1.779
32	2.67	5.90	1.338	0.080	(0.508)	1.258
33	2.75	2.00	0.454	0.080	(0.172)	0.373
34	2.83	1.80	0.408	0.080	(0.155)	0.328
35	2.92	1.80	0.408	0.080	(0.155)	0.328
36	3.00	0.60	0.136	(0.080)	0.052	0.084

(Loss Rate Not Used)

Sum = 100.0 Sum = 19.8

Flood volume = Effective rainfall 1.65(In)
times area 4.0(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
Total soil loss = 0.24(In)
Total soil loss = 0.080(Ac.Ft)
Total rainfall = 1.89(In)
Flood volume = 23973.0 Cubic Feet
Total soil loss = 3469.4 Cubic Feet

Peak flow rate of this hydrograph = 6.789(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

--
 Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0032	0.47	VQ	|	|	|
0+10	0.0090	0.84	V Q	|	|	|
0+15	0.0143	0.76	|V Q	|	|	|
0+20	0.0204	0.89	|V Q	|	|	|
0+25	0.0276	1.04	| V Q	|	|	|
0+30	0.0358	1.20	| V Q	|	|	|
0+35	0.0438	1.16	| VQ	|	|	|
0+40	0.0521	1.21	| VQ	|	|	|
0+45	0.0612	1.31	| VQ	|	|	|
0+50	0.0692	1.17	| QV	|	|	|
0+55	0.0769	1.11	| QV	|	|	|
1+ 0	0.0854	1.24	| Q V	|	|	|
1+ 5	0.0958	1.52	| Q	|	|	|
1+10	0.1074	1.68	| QV	|	|	|
1+15	0.1190	1.69	| Q V |	|	|	|
1+20	0.1299	1.59	| Q V|	|	|	|
1+25	0.1424	1.81	| Q V	|	|	|
1+30	0.1568	2.09	| Q |V	|	|	|
1+35	0.1705	1.99	| Q | V	|	|	|
1+40	0.1845	2.03	| Q | V	|	|	|
1+45	0.2013	2.44	| Q| V	|	|	|
1+50	0.2190	2.58	| Q V	|	|	|
1+55	0.2357	2.42	| Q| V	|	|	|
2+ 0	0.2521	2.38	| Q| V	|	|	|
2+ 5	0.2691	2.47	| Q| V|	|	|	|
2+10	0.2901	3.06	| | Q |V	|	|	|
2+15	0.3169	3.89	| | Q | V	|	|	|
2+20	0.3409	3.48	| | Q | V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

|	2+25	0.3723	4.56	|	|	Q	|	V	|
|	2+30	0.4140	6.06	|	|	|	|	Q	V
|	2+35	0.4608	6.79	|	|	|	|	Q	V
|	2+40	0.5021	6.00	|	|	|	|	Q	V
|	2+45	0.5241	3.19	|	|	Q	|	|	V
|	2+50	0.5345	1.51	|	Q	|	|	|	V
|	2+55	0.5436	1.33	|	Q	|	|	|	
V|	3+ 0	0.5490	0.79	|	Q	|	|	|	
V|	3+ 5	0.5503	0.18	Q	|	|	|	|	
V|	3+10	0.5503	0.01	Q	|	|	|	|	
V									

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post62.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--

Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
(Ft.)
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Mi.
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 1.09 4.36

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 2.55 10.20

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 1.090(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.090(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						Sum (F) =
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)	Effective
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Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.50	0.065	(0.155)	0.025	0.041
2	0.17	0.60	0.078	(0.155)	0.030	0.049
3	0.25	0.60	0.078	(0.155)	0.030	0.049
4	0.33	0.60	0.078	(0.155)	0.030	0.049
5	0.42	0.60	0.078	(0.155)	0.030	0.049
6	0.50	0.70	0.092	(0.155)	0.035	0.057
7	0.58	0.70	0.092	(0.155)	0.035	0.057
8	0.67	0.70	0.092	(0.155)	0.035	0.057
9	0.75	0.70	0.092	(0.155)	0.035	0.057
10	0.83	0.70	0.092	(0.155)	0.035	0.057
11	0.92	0.70	0.092	(0.155)	0.035	0.057
12	1.00	0.80	0.105	(0.155)	0.040	0.065
13	1.08	0.80	0.105	(0.155)	0.040	0.065
14	1.17	0.80	0.105	(0.155)	0.040	0.065
15	1.25	0.80	0.105	(0.155)	0.040	0.065
16	1.33	0.80	0.105	(0.155)	0.040	0.065
17	1.42	0.80	0.105	(0.155)	0.040	0.065
18	1.50	0.80	0.105	(0.155)	0.040	0.065
19	1.58	0.80	0.105	(0.155)	0.040	0.065
20	1.67	0.80	0.105	(0.155)	0.040	0.065
21	1.75	0.80	0.105	(0.155)	0.040	0.065
22	1.83	0.80	0.105	(0.155)	0.040	0.065
23	1.92	0.80	0.105	(0.155)	0.040	0.065
24	2.00	0.90	0.118	(0.155)	0.045	0.073
25	2.08	0.80	0.105	(0.155)	0.040	0.065
26	2.17	0.90	0.118	(0.155)	0.045	0.073
27	2.25	0.90	0.118	(0.155)	0.045	0.073
28	2.33	0.90	0.118	(0.155)	0.045	0.073
29	2.42	0.90	0.118	(0.155)	0.045	0.073
30	2.50	0.90	0.118	(0.155)	0.045	0.073
31	2.58	0.90	0.118	(0.155)	0.045	0.073
32	2.67	0.90	0.118	(0.155)	0.045	0.073
33	2.75	1.00	0.131	(0.155)	0.050	0.081
34	2.83	1.00	0.131	(0.155)	0.050	0.081
35	2.92	1.00	0.131	(0.155)	0.050	0.081
36	3.00	1.00	0.131	(0.155)	0.050	0.081
37	3.08	1.00	0.131	(0.155)	0.050	0.081
38	3.17	1.10	0.144	(0.155)	0.055	0.089
39	3.25	1.10	0.144	(0.155)	0.055	0.089
40	3.33	1.10	0.144	(0.155)	0.055	0.089
41	3.42	1.20	0.157	(0.155)	0.060	0.097
42	3.50	1.30	0.170	(0.155)	0.065	0.105
43	3.58	1.40	0.183	(0.155)	0.070	0.114
44	3.67	1.40	0.183	(0.155)	0.070	0.114
45	3.75	1.50	0.196	(0.155)	0.075	0.122
46	3.83	1.50	0.196	(0.155)	0.075	0.122
47	3.92	1.60	0.209	(0.155)	0.080	0.130
48	4.00	1.60	0.209	(0.155)	0.080	0.130
49	4.08	1.70	0.222	(0.155)	0.084	0.138
50	4.17	1.80	0.235	(0.155)	0.089	0.146
51	4.25	1.90	0.249	(0.155)	0.094	0.154
52	4.33	2.00	0.262	(0.155)	0.099	0.162
53	4.42	2.10	0.275	(0.155)	0.104	0.170
54	4.50	2.10	0.275	(0.155)	0.104	0.170
55	4.58	2.20	0.288	(0.155)	0.109	0.178
56	4.67	2.30	0.301	(0.155)	0.114	0.187
57	4.75	2.40	0.314	(0.155)	0.119	0.195
58	4.83	2.40	0.314	(0.155)	0.119	0.195
59	4.92	2.50	0.327	(0.155)	0.124	0.203

60	5.00	2.60	0.340	(0.155)	0.129	0.211
61	5.08	3.10	0.405	(0.155)	0.154	0.251
62	5.17	3.60	0.471	0.155	(0.179)	0.316
63	5.25	3.90	0.510	0.155	(0.194)	0.355
64	5.33	4.20	0.549	0.155	(0.209)	0.395
65	5.42	4.70	0.615	0.155	(0.234)	0.460
66	5.50	5.60	0.732	0.155	(0.278)	0.578
67	5.58	1.90	0.249	(0.155)	0.094	0.154
68	5.67	0.90	0.118	(0.155)	0.045	0.073
69	5.75	0.60	0.078	(0.155)	0.030	0.049
70	5.83	0.50	0.065	(0.155)	0.025	0.041
71	5.92	0.30	0.039	(0.155)	0.015	0.024
72	6.00	0.20	0.026	(0.155)	0.010	0.016

(Loss Rate Not Used)

Sum = 100.0 Sum = 8.4

Flood volume = Effective rainfall 0.70(In)
 times area 4.0(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.39(In)
 Total soil loss = 0.129(Ac.Ft)
 Total rainfall = 1.09(In)
 Flood volume = 10199.6 Cubic Feet
 Total soil loss = 5627.0 Cubic Feet

 Peak flow rate of this hydrograph = 2.107(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0006	0.09	Q	|	|	|
0+10	0.0018	0.18	Q	|	|	|
0+15	0.0032	0.20	Q	|	|	|
0+20	0.0045	0.20	Q	|	|	|
0+25	0.0059	0.20	QV	|	|	|
0+30	0.0074	0.21	QV	|	|	|
0+35	0.0089	0.23	QV	|	|	|
0+40	0.0105	0.23	QV	|	|	|
0+45	0.0121	0.23	Q V	|	|	|
0+50	0.0137	0.23	Q V	|	|	|

0+55	0.0152	0.23	Q V	|	|	|
1+ 0	0.0169	0.25	Q V	|	|	|
1+ 5	0.0187	0.26	|Q V	|	|	|
1+10	0.0205	0.26	|Q V	|	|	|
1+15	0.0223	0.26	|Q V	|	|	|
1+20	0.0241	0.26	|Q V	|	|	|
1+25	0.0259	0.26	|Q V	|	|	|
1+30	0.0277	0.26	|Q V	|	|	|
1+35	0.0295	0.26	|Q V	|	|	|
1+40	0.0313	0.26	|Q V	|	|	|
1+45	0.0331	0.26	|Q V	|	|	|
1+50	0.0349	0.26	|Q V	|	|	|
1+55	0.0367	0.26	|Q V	|	|	|
2+ 0	0.0387	0.28	|Q V	|	|	|
2+ 5	0.0406	0.28	|Q V	|	|	|
2+10	0.0425	0.28	|Q V	|	|	|
2+15	0.0445	0.29	|Q V	|	|	|
2+20	0.0466	0.29	|Q V	|	|	|
2+25	0.0486	0.29	|Q V	|	|	|
2+30	0.0506	0.29	|Q V	|	|	|
2+35	0.0526	0.29	|Q V	|	|	|
2+40	0.0547	0.29	|Q V|	|	|	|
2+45	0.0568	0.31	|Q V|	|	|	|
2+50	0.0591	0.33	|Q V	|	|	|
2+55	0.0613	0.33	|Q V	|	|	|
3+ 0	0.0636	0.33	|Q V	|	|	|
3+ 5	0.0658	0.33	|Q |V	|	|	|
3+10	0.0682	0.34	|Q |V	|	|	|
3+15	0.0707	0.36	|Q | V	|	|	|
3+20	0.0731	0.36	|Q | V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	3+25	0.0757	0.38	|Q	|	v	|	|
	3+30	0.0786	0.41	|Q	|	v	|	|
	3+35	0.0816	0.44	|Q	|	v	|	|
	3+40	0.0848	0.46	|Q	|	v	|	|
	3+45	0.0880	0.48	|Q	|	v	|	|
	3+50	0.0914	0.49	|Q	|	v	|	|
	3+55	0.0949	0.51	|Q	|	v	|	|
	4+ 0	0.0985	0.52	|Q	|	v	|	|
	4+ 5	0.1022	0.54	|Q	|	v	|	|
	4+10	0.1062	0.57	|Q	|	v	|	|
	4+15	0.1103	0.61	|Q	|	v	|	|
	4+20	0.1147	0.64	|Q	|	v	|	|
	4+25	0.1194	0.67	|Q	|	v	|	|
	4+30	0.1241	0.69	|Q	|	v	|	|
	4+35	0.1289	0.70	|Q	|	v	|	|
	4+40	0.1340	0.74	|Q	|	v	|	|
	4+45	0.1393	0.77	|Q	|	v	|	|
	4+50	0.1447	0.78	|Q	|	v	|	|
	4+55	0.1502	0.80	|Q	|	v	|	|
	5+ 0	0.1560	0.83	|Q	|	v	|	|
	5+ 5	0.1625	0.94	|Q	|	v	|	|
	5+10	0.1704	1.15	|Q	|	v	|	|
	5+15	0.1797	1.35	|Q	|	v	|	|
	5+20	0.1901	1.52	|Q	|	v	|	v
	5+25	0.2021	1.73	|Q	|	v	|	v
	5+30	0.2166	2.11	|Q	|	v	|	v
	5+35	0.2261	1.38	|Q	|	v	|	v
v|	5+40	0.2295	0.49	|Q	|	v	|	|
v|	5+45	0.2312	0.25	|Q	|	v	|	|
	5+50	0.2325	0.18	|Q	|	v	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	5+55	0.2334	0.13	Q	|	|	|
V	6+ 0	0.2339	0.08	Q			
V	6+ 5	0.2341	0.03	Q			
V	6+10	0.2342	0.00	Q			
V							

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post65.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4.00 1.09 4.36

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 2.55 10.20

STORM EVENT (YEAR) = 5.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 1.432(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.432(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						Sum (F) =
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)	Effective
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	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.50	0.086	(0.155)	0.033	0.053
2	0.17	0.60	0.103	(0.155)	0.039	0.064
3	0.25	0.60	0.103	(0.155)	0.039	0.064
4	0.33	0.60	0.103	(0.155)	0.039	0.064
5	0.42	0.60	0.103	(0.155)	0.039	0.064
6	0.50	0.70	0.120	(0.155)	0.046	0.075
7	0.58	0.70	0.120	(0.155)	0.046	0.075
8	0.67	0.70	0.120	(0.155)	0.046	0.075
9	0.75	0.70	0.120	(0.155)	0.046	0.075
10	0.83	0.70	0.120	(0.155)	0.046	0.075
11	0.92	0.70	0.120	(0.155)	0.046	0.075
12	1.00	0.80	0.137	(0.155)	0.052	0.085
13	1.08	0.80	0.137	(0.155)	0.052	0.085
14	1.17	0.80	0.137	(0.155)	0.052	0.085
15	1.25	0.80	0.137	(0.155)	0.052	0.085
16	1.33	0.80	0.137	(0.155)	0.052	0.085
17	1.42	0.80	0.137	(0.155)	0.052	0.085
18	1.50	0.80	0.137	(0.155)	0.052	0.085
19	1.58	0.80	0.137	(0.155)	0.052	0.085
20	1.67	0.80	0.137	(0.155)	0.052	0.085
21	1.75	0.80	0.137	(0.155)	0.052	0.085
22	1.83	0.80	0.137	(0.155)	0.052	0.085
23	1.92	0.80	0.137	(0.155)	0.052	0.085
24	2.00	0.90	0.155	(0.155)	0.059	0.096
25	2.08	0.80	0.137	(0.155)	0.052	0.085
26	2.17	0.90	0.155	(0.155)	0.059	0.096
27	2.25	0.90	0.155	(0.155)	0.059	0.096
28	2.33	0.90	0.155	(0.155)	0.059	0.096
29	2.42	0.90	0.155	(0.155)	0.059	0.096
30	2.50	0.90	0.155	(0.155)	0.059	0.096
31	2.58	0.90	0.155	(0.155)	0.059	0.096
32	2.67	0.90	0.155	(0.155)	0.059	0.096
33	2.75	1.00	0.172	(0.155)	0.065	0.107
34	2.83	1.00	0.172	(0.155)	0.065	0.107
35	2.92	1.00	0.172	(0.155)	0.065	0.107
36	3.00	1.00	0.172	(0.155)	0.065	0.107
37	3.08	1.00	0.172	(0.155)	0.065	0.107
38	3.17	1.10	0.189	(0.155)	0.072	0.117
39	3.25	1.10	0.189	(0.155)	0.072	0.117
40	3.33	1.10	0.189	(0.155)	0.072	0.117
41	3.42	1.20	0.206	(0.155)	0.078	0.128
42	3.50	1.30	0.223	(0.155)	0.085	0.138
43	3.58	1.40	0.241	(0.155)	0.091	0.149
44	3.67	1.40	0.241	(0.155)	0.091	0.149
45	3.75	1.50	0.258	(0.155)	0.098	0.160
46	3.83	1.50	0.258	(0.155)	0.098	0.160
47	3.92	1.60	0.275	(0.155)	0.104	0.170
48	4.00	1.60	0.275	(0.155)	0.104	0.170
49	4.08	1.70	0.292	(0.155)	0.111	0.181
50	4.17	1.80	0.309	(0.155)	0.118	0.192
51	4.25	1.90	0.326	(0.155)	0.124	0.202
52	4.33	2.00	0.344	(0.155)	0.131	0.213
53	4.42	2.10	0.361	(0.155)	0.137	0.224
54	4.50	2.10	0.361	(0.155)	0.137	0.224
55	4.58	2.20	0.378	(0.155)	0.144	0.234
56	4.67	2.30	0.395	(0.155)	0.150	0.245
57	4.75	2.40	0.412	0.155	(0.157)	0.258
58	4.83	2.40	0.412	0.155	(0.157)	0.258
59	4.92	2.50	0.430	0.155	(0.163)	0.275

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

60	5.00	2.60	0.447	0.155	(0.170)	0.292
61	5.08	3.10	0.533	0.155	(0.202)	0.378
62	5.17	3.60	0.619	0.155	(0.235)	0.464
63	5.25	3.90	0.670	0.155	(0.255)	0.515
64	5.33	4.20	0.722	0.155	(0.274)	0.567
65	5.42	4.70	0.808	0.155	(0.307)	0.653
66	5.50	5.60	0.962	0.155	(0.366)	0.808
67	5.58	1.90	0.326	(0.155)	0.124	0.202
68	5.67	0.90	0.155	(0.155)	0.059	0.096
69	5.75	0.60	0.103	(0.155)	0.039	0.064
70	5.83	0.50	0.086	(0.155)	0.033	0.053
71	5.92	0.30	0.052	(0.155)	0.020	0.032
72	6.00	0.20	0.034	(0.155)	0.013	0.021

(Loss Rate Not Used)

Sum = 100.0 Sum = 11.4

Flood volume = Effective rainfall 0.95(In)
 times area 4.0(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
 Total soil loss = 0.48(In)
 Total soil loss = 0.161(Ac.Ft)
 Total rainfall = 1.43(In)
 Flood volume = 13784.3 Cubic Feet
 Total soil loss = 7007.6 Cubic Feet

 Peak flow rate of this hydrograph = 2.964(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0008	0.12	Q	|	|	|
0+10	0.0024	0.23	Q	|	|	|
0+15	0.0042	0.26	VQ	|	|	|
0+20	0.0059	0.26	VQ	|	|	|
0+25	0.0077	0.26	VQ	|	|	|
0+30	0.0097	0.28	|Q	|	|	|
0+35	0.0117	0.30	|Q	|	|	|
0+40	0.0138	0.30	|Q	|	|	|
0+45	0.0159	0.30	|QV	|	|	|
0+50	0.0179	0.30	|QV	|	|	|

0+55	0.0200	0.30	|QV	|	|	|
1+ 0	0.0222	0.32	|QV	|	|	|
1+ 5	0.0246	0.34	|Q V	|	|	|
1+10	0.0270	0.34	|Q V	|	|	|
1+15	0.0293	0.34	|Q V	|	|	|
1+20	0.0317	0.34	|Q V	|	|	|
1+25	0.0341	0.34	|Q V	|	|	|
1+30	0.0364	0.34	|Q V	|	|	|
1+35	0.0388	0.34	|Q V	|	|	|
1+40	0.0412	0.34	|Q V	|	|	|
1+45	0.0435	0.34	|Q V	|	|	|
1+50	0.0459	0.34	|Q V	|	|	|
1+55	0.0483	0.34	|Q V	|	|	|
2+ 0	0.0508	0.37	|Q V	|	|	|
2+ 5	0.0533	0.36	|Q V	|	|	|
2+10	0.0558	0.37	|Q V	|	|	|
2+15	0.0585	0.39	|Q V	|	|	|
2+20	0.0612	0.39	|Q V	|	|	|
2+25	0.0638	0.39	|Q V	|	|	|
2+30	0.0665	0.39	|Q V	|	|	|
2+35	0.0691	0.39	|Q V	|	|	|
2+40	0.0718	0.39	|Q V|	|	|	|
2+45	0.0746	0.41	|Q V|	|	|	|
2+50	0.0776	0.43	|Q V|	|	|	|
2+55	0.0805	0.43	|Q V	|	|	|
3+ 0	0.0835	0.43	|Q V	|	|	|
3+ 5	0.0865	0.43	|Q V	|	|	|
3+10	0.0896	0.45	|Q |V	|	|	|
3+15	0.0928	0.47	|Q |V	|	|	|
3+20	0.0961	0.47	|Q | V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	3+25	0.0995	0.50	| Q	| V	|	|
	3+30	0.1032	0.54	| Q	| V	|	|
	3+35	0.1072	0.58	| Q	| V	|	|
	3+40	0.1113	0.60	| Q	| V	|	|
	3+45	0.1156	0.63	| Q	| V	|	|
	3+50	0.1201	0.64	| Q	| V	|	|
	3+55	0.1247	0.67	| Q	| V	|	|
	4+ 0	0.1294	0.69	| Q	| V	|	|
	4+ 5	0.1343	0.71	| Q	| V	|	|
	4+10	0.1395	0.75	| Q	| V	|	|
	4+15	0.1450	0.80	| Q	| V	|	|
	4+20	0.1507	0.84	| Q	| V	|	|
	4+25	0.1568	0.88	| Q	| V	|	|
	4+30	0.1630	0.90	| Q	| V	|	|
	4+35	0.1694	0.93	| Q	| V	|	|
	4+40	0.1761	0.97	| Q	| V	|	|
	4+45	0.1830	1.01	| Q	| V	|	|
	4+50	0.1902	1.04	| Q	| V	|	|
	4+55	0.1976	1.08	| Q	| V	|	|
	5+ 0	0.2055	1.14	| Q	| V	|	|
	5+ 5	0.2149	1.37	| Q	| V	|	|
	5+10	0.2266	1.70	| Q	| V	|	|
	5+15	0.2402	1.97	| Q	| V	|	|
	5+20	0.2553	2.19	| Q	| V	|	|
	5+25	0.2723	2.47	| Q	| V	|	|
	5+30	0.2927	2.96	| Q	| V	|	|
	5+35	0.3059	1.91	| Q	| V	|	|
V|	5+40	0.3103	0.65	| Q	|	|	|
V|	5+45	0.3126	0.33	| Q	|	|	|
	5+50	0.3142	0.24	| Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	5+55	0.3154	0.17	Q	|	|	|
V	6+ 0	0.3161	0.11	Q			
V	6+ 5	0.3164	0.04	Q			
V	6+10	0.3164	0.00	Q			
V							

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post610.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 1.09 4.36

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 2.55 10.20

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 1.691(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.691(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						Sum (F) =
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time Pattern Storm Rain Loss rate(In./Hr) Effective

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.50	0.101	(0.155)	0.039	0.063
2	0.17	0.60	0.122	(0.155)	0.046	0.075
3	0.25	0.60	0.122	(0.155)	0.046	0.075
4	0.33	0.60	0.122	(0.155)	0.046	0.075
5	0.42	0.60	0.122	(0.155)	0.046	0.075
6	0.50	0.70	0.142	(0.155)	0.054	0.088
7	0.58	0.70	0.142	(0.155)	0.054	0.088
8	0.67	0.70	0.142	(0.155)	0.054	0.088
9	0.75	0.70	0.142	(0.155)	0.054	0.088
10	0.83	0.70	0.142	(0.155)	0.054	0.088
11	0.92	0.70	0.142	(0.155)	0.054	0.088
12	1.00	0.80	0.162	(0.155)	0.062	0.101
13	1.08	0.80	0.162	(0.155)	0.062	0.101
14	1.17	0.80	0.162	(0.155)	0.062	0.101
15	1.25	0.80	0.162	(0.155)	0.062	0.101
16	1.33	0.80	0.162	(0.155)	0.062	0.101
17	1.42	0.80	0.162	(0.155)	0.062	0.101
18	1.50	0.80	0.162	(0.155)	0.062	0.101
19	1.58	0.80	0.162	(0.155)	0.062	0.101
20	1.67	0.80	0.162	(0.155)	0.062	0.101
21	1.75	0.80	0.162	(0.155)	0.062	0.101
22	1.83	0.80	0.162	(0.155)	0.062	0.101
23	1.92	0.80	0.162	(0.155)	0.062	0.101
24	2.00	0.90	0.183	(0.155)	0.069	0.113
25	2.08	0.80	0.162	(0.155)	0.062	0.101
26	2.17	0.90	0.183	(0.155)	0.069	0.113
27	2.25	0.90	0.183	(0.155)	0.069	0.113
28	2.33	0.90	0.183	(0.155)	0.069	0.113
29	2.42	0.90	0.183	(0.155)	0.069	0.113
30	2.50	0.90	0.183	(0.155)	0.069	0.113
31	2.58	0.90	0.183	(0.155)	0.069	0.113
32	2.67	0.90	0.183	(0.155)	0.069	0.113
33	2.75	1.00	0.203	(0.155)	0.077	0.126
34	2.83	1.00	0.203	(0.155)	0.077	0.126
35	2.92	1.00	0.203	(0.155)	0.077	0.126
36	3.00	1.00	0.203	(0.155)	0.077	0.126
37	3.08	1.00	0.203	(0.155)	0.077	0.126
38	3.17	1.10	0.223	(0.155)	0.085	0.138
39	3.25	1.10	0.223	(0.155)	0.085	0.138
40	3.33	1.10	0.223	(0.155)	0.085	0.138
41	3.42	1.20	0.243	(0.155)	0.093	0.151
42	3.50	1.30	0.264	(0.155)	0.100	0.164
43	3.58	1.40	0.284	(0.155)	0.108	0.176
44	3.67	1.40	0.284	(0.155)	0.108	0.176
45	3.75	1.50	0.304	(0.155)	0.116	0.189
46	3.83	1.50	0.304	(0.155)	0.116	0.189
47	3.92	1.60	0.325	(0.155)	0.123	0.201
48	4.00	1.60	0.325	(0.155)	0.123	0.201
49	4.08	1.70	0.345	(0.155)	0.131	0.214
50	4.17	1.80	0.365	(0.155)	0.139	0.226
51	4.25	1.90	0.385	(0.155)	0.146	0.239
52	4.33	2.00	0.406	(0.155)	0.154	0.252
53	4.42	2.10	0.426	0.155	(0.162)	0.271
54	4.50	2.10	0.426	0.155	(0.162)	0.271
55	4.58	2.20	0.446	0.155	(0.170)	0.292
56	4.67	2.30	0.467	0.155	(0.177)	0.312
57	4.75	2.40	0.487	0.155	(0.185)	0.332
58	4.83	2.40	0.487	0.155	(0.185)	0.332
59	4.92	2.50	0.507	0.155	(0.193)	0.352

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

60	5.00	2.60	0.527	0.155	(0.200)	0.373
61	5.08	3.10	0.629	0.155	(0.239)	0.474
62	5.17	3.60	0.730	0.155	(0.278)	0.576
63	5.25	3.90	0.791	0.155	(0.301)	0.637
64	5.33	4.20	0.852	0.155	(0.324)	0.697
65	5.42	4.70	0.954	0.155	(0.362)	0.799
66	5.50	5.60	1.136	0.155	(0.432)	0.981
67	5.58	1.90	0.385	(0.155)	0.146	0.239
68	5.67	0.90	0.183	(0.155)	0.069	0.113
69	5.75	0.60	0.122	(0.155)	0.046	0.075
70	5.83	0.50	0.101	(0.155)	0.039	0.063
71	5.92	0.30	0.061	(0.155)	0.023	0.038
72	6.00	0.20	0.041	(0.155)	0.015	0.025

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.8

Flood volume = Effective rainfall 1.15(In)
 times area 4.0(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
 Total soil loss = 0.54(In)
 Total soil loss = 0.181(Ac.Ft)
 Total rainfall = 1.69(In)
 Flood volume = 16675.4 Cubic Feet
 Total soil loss = 7872.6 Cubic Feet

 Peak flow rate of this hydrograph = 3.612(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0010	0.14	Q	|	|	|
0+10	0.0028	0.27	VQ	|	|	|
0+15	0.0049	0.30	VQ	|	|	|
0+20	0.0070	0.30	VQ	|	|	|
0+25	0.0091	0.30	VQ	|	|	|
0+30	0.0114	0.33	|Q	|	|	|
0+35	0.0138	0.35	|Q	|	|	|
0+40	0.0163	0.36	|Q	|	|	|
0+45	0.0187	0.36	|Q	|	|	|
0+50	0.0212	0.36	|QV	|	|	|

0+55	0.0236	0.36	|QV	|	|	|
1+ 0	0.0263	0.38	|QV	|	|	|
1+ 5	0.0290	0.40	|Q V	|	|	|
1+10	0.0318	0.41	|Q V	|	|	|
1+15	0.0346	0.41	|Q V	|	|	|
1+20	0.0374	0.41	|Q V	|	|	|
1+25	0.0402	0.41	|Q V	|	|	|
1+30	0.0430	0.41	|Q V	|	|	|
1+35	0.0458	0.41	|Q V	|	|	|
1+40	0.0486	0.41	|Q V	|	|	|
1+45	0.0514	0.41	|Q V	|	|	|
1+50	0.0542	0.41	|Q V	|	|	|
1+55	0.0570	0.41	|Q V	|	|	|
2+ 0	0.0600	0.43	|Q V	|	|	|
2+ 5	0.0629	0.43	|Q V	|	|	|
2+10	0.0659	0.43	|Q V	|	|	|
2+15	0.0691	0.46	|Q V	|	|	|
2+20	0.0722	0.46	|Q V	|	|	|
2+25	0.0753	0.46	|Q V	|	|	|
2+30	0.0785	0.46	|Q V	|	|	|
2+35	0.0816	0.46	|Q V	|	|	|
2+40	0.0848	0.46	|Q V	|	|	|
2+45	0.0881	0.48	|Q V|	|	|	|
2+50	0.0916	0.51	| Q V|	|	|	|
2+55	0.0951	0.51	| Q V|	|	|	|
3+ 0	0.0986	0.51	| Q V	|	|	|
3+ 5	0.1021	0.51	| Q V	|	|	|
3+10	0.1058	0.54	| Q |V	|	|	|
3+15	0.1096	0.56	| Q |V	|	|	|
3+20	0.1134	0.56	| Q |V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	3+25	0.1175	0.59	| Q	| V	|	|
	3+30	0.1219	0.64	| Q	| V	|	|
	3+35	0.1266	0.69	| Q	| V	|	|
	3+40	0.1315	0.71	| Q	| V	|	|
	3+45	0.1365	0.74	| Q	| V	|	|
	3+50	0.1418	0.76	| Q	| V	|	|
	3+55	0.1472	0.79	| Q	| V	|	|
	4+ 0	0.1528	0.81	| Q	| V	|	|
	4+ 5	0.1586	0.84	| Q	| V	|	|
	4+10	0.1647	0.89	| Q	| V	|	|
	4+15	0.1712	0.94	| Q	| V	|	|
	4+20	0.1780	0.99	| Q	| V	|	|
	4+25	0.1853	1.06	| Q	| V	|	|
	4+30	0.1928	1.09	| Q	| V	|	|
	4+35	0.2006	1.14	| Q	| V	|	|
	4+40	0.2090	1.22	| Q	| V	|	|
	4+45	0.2180	1.30	| Q	| V	|	|
	4+50	0.2272	1.34	| Q	| V	|	|
	4+55	0.2367	1.38	| Q	| V	|	|
	5+ 0	0.2468	1.46	| Q	| V	|	|
	5+ 5	0.2587	1.72	| Q	| V	|	|
	5+10	0.2733	2.12	| Q	| V	|	|
	5+15	0.2901	2.44	| Q	| V	|	|
	5+20	0.3087	2.69	| Q	| V	|	|
	5+25	0.3295	3.03	| Q	| V	|	|
	5+30	0.3544	3.61	| Q	| V	|	|
	5+35	0.3703	2.30	| Q	| V	|	|
V|	5+40	0.3756	0.77	| Q	|	|	|
V|	5+45	0.3783	0.39	| Q	|	|	|
	5+50	0.3802	0.28	| Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V	5+55	0.3816	0.20	Q			
V	6+ 0	0.3825	0.13	Q			
V	6+ 5	0.3828	0.05	Q			
V	6+10	0.3828	0.00	Q			

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post6100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--

Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
(Ft.)
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Mi.
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 1.09 4.36

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 2.55 10.20

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 2.550(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.550(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	84.4	0.194	0.650	0.080	1.000	
0.080						Sum (F) =
0.080						

Area averaged mean soil loss (F) (In/Hr) = 0.080
 Minimum soil loss rate ((In/Hr)) = 0.040
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time Pattern Storm Rain Loss rate(In./Hr) Effective

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.50	0.153	(0.080)	0.058	0.095
2	0.17	0.60	0.184	(0.080)	0.070	0.114
3	0.25	0.60	0.184	(0.080)	0.070	0.114
4	0.33	0.60	0.184	(0.080)	0.070	0.114
5	0.42	0.60	0.184	(0.080)	0.070	0.114
6	0.50	0.70	0.214	0.080	(0.081)	0.134
7	0.58	0.70	0.214	0.080	(0.081)	0.134
8	0.67	0.70	0.214	0.080	(0.081)	0.134
9	0.75	0.70	0.214	0.080	(0.081)	0.134
10	0.83	0.70	0.214	0.080	(0.081)	0.134
11	0.92	0.70	0.214	0.080	(0.081)	0.134
12	1.00	0.80	0.245	0.080	(0.093)	0.164
13	1.08	0.80	0.245	0.080	(0.093)	0.164
14	1.17	0.80	0.245	0.080	(0.093)	0.164
15	1.25	0.80	0.245	0.080	(0.093)	0.164
16	1.33	0.80	0.245	0.080	(0.093)	0.164
17	1.42	0.80	0.245	0.080	(0.093)	0.164
18	1.50	0.80	0.245	0.080	(0.093)	0.164
19	1.58	0.80	0.245	0.080	(0.093)	0.164
20	1.67	0.80	0.245	0.080	(0.093)	0.164
21	1.75	0.80	0.245	0.080	(0.093)	0.164
22	1.83	0.80	0.245	0.080	(0.093)	0.164
23	1.92	0.80	0.245	0.080	(0.093)	0.164
24	2.00	0.90	0.275	0.080	(0.105)	0.195
25	2.08	0.80	0.245	0.080	(0.093)	0.164
26	2.17	0.90	0.275	0.080	(0.105)	0.195
27	2.25	0.90	0.275	0.080	(0.105)	0.195
28	2.33	0.90	0.275	0.080	(0.105)	0.195
29	2.42	0.90	0.275	0.080	(0.105)	0.195
30	2.50	0.90	0.275	0.080	(0.105)	0.195
31	2.58	0.90	0.275	0.080	(0.105)	0.195
32	2.67	0.90	0.275	0.080	(0.105)	0.195
33	2.75	1.00	0.306	0.080	(0.116)	0.226
34	2.83	1.00	0.306	0.080	(0.116)	0.226
35	2.92	1.00	0.306	0.080	(0.116)	0.226
36	3.00	1.00	0.306	0.080	(0.116)	0.226
37	3.08	1.00	0.306	0.080	(0.116)	0.226
38	3.17	1.10	0.337	0.080	(0.128)	0.256
39	3.25	1.10	0.337	0.080	(0.128)	0.256
40	3.33	1.10	0.337	0.080	(0.128)	0.256
41	3.42	1.20	0.367	0.080	(0.140)	0.287
42	3.50	1.30	0.398	0.080	(0.151)	0.317
43	3.58	1.40	0.428	0.080	(0.163)	0.348
44	3.67	1.40	0.428	0.080	(0.163)	0.348
45	3.75	1.50	0.459	0.080	(0.174)	0.379
46	3.83	1.50	0.459	0.080	(0.174)	0.379
47	3.92	1.60	0.490	0.080	(0.186)	0.409
48	4.00	1.60	0.490	0.080	(0.186)	0.409
49	4.08	1.70	0.520	0.080	(0.198)	0.440
50	4.17	1.80	0.551	0.080	(0.209)	0.470
51	4.25	1.90	0.581	0.080	(0.221)	0.501
52	4.33	2.00	0.612	0.080	(0.233)	0.532
53	4.42	2.10	0.643	0.080	(0.244)	0.562
54	4.50	2.10	0.643	0.080	(0.244)	0.562
55	4.58	2.20	0.673	0.080	(0.256)	0.593
56	4.67	2.30	0.704	0.080	(0.267)	0.623
57	4.75	2.40	0.734	0.080	(0.279)	0.654
58	4.83	2.40	0.734	0.080	(0.279)	0.654
59	4.92	2.50	0.765	0.080	(0.291)	0.685

0+55	0.0358	0.54	| Q	|	|	|
1+ 0	0.0400	0.61	| Q	|	|	|
1+ 5	0.0445	0.66	| Q	|	|	|
1+10	0.0491	0.66	| Q	|	|	|
1+15	0.0536	0.66	| QV	|	|	|
1+20	0.0582	0.66	| QV	|	|	|
1+25	0.0628	0.66	| QV	|	|	|
1+30	0.0673	0.66	| QV	|	|	|
1+35	0.0719	0.66	| Q V	|	|	|
1+40	0.0765	0.66	| Q V	|	|	|
1+45	0.0810	0.66	| Q V	|	|	|
1+50	0.0856	0.66	| Q V	|	|	|
1+55	0.0902	0.66	| Q V	|	|	|
2+ 0	0.0952	0.73	| Q V	|	|	|
2+ 5	0.1001	0.72	| Q V	|	|	|
2+10	0.1052	0.73	| Q V	|	|	|
2+15	0.1106	0.78	| Q V	|	|	|
2+20	0.1160	0.79	| Q V	|	|	|
2+25	0.1214	0.79	| Q V	|	|	|
2+30	0.1268	0.79	| Q V	|	|	|
2+35	0.1322	0.79	| Q V	|	|	|
2+40	0.1376	0.79	| Q V	|	|	|
2+45	0.1435	0.85	| Q V	|	|	|
2+50	0.1498	0.91	| Q V	|	|	|
2+55	0.1560	0.91	| Q V	|	|	|
3+ 0	0.1623	0.91	| Q V	|	|	|
3+ 5	0.1685	0.91	| Q V	|	|	|
3+10	0.1753	0.98	| Q V	|	|	|
3+15	0.1824	1.03	| Q V	|	|	|
3+20	0.1895	1.03	| Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	3+25	0.1971	1.10	|	Q	|	V	|		
	3+30	0.2055	1.22	|	Q	|	V	|		
	3+35	0.2147	1.34	|	Q	|	V	|		
	3+40	0.2244	1.40	|	Q	|	V	|		
	3+45	0.2345	1.47	|	Q	|	V	|		
	3+50	0.2450	1.52	|	Q	|	V	|		
	3+55	0.2560	1.59	|	Q	|	V	|		
	4+ 0	0.2673	1.65	|	Q	|	V	|		
	4+ 5	0.2791	1.72	|	Q	|	V	|		
	4+10	0.2918	1.84	|	Q	|	V	|		
	4+15	0.3053	1.96	|	Q	|	V	|		
	4+20	0.3196	2.08	|	Q	|	V	|		
	4+25	0.3349	2.21	|	Q	|	V	|		
	4+30	0.3504	2.26	|	Q	|	V	|		
	4+35	0.3665	2.33	|	Q	|	V	|		
	4+40	0.3834	2.45	|	Q	|	V	|		
	4+45	0.4012	2.58	|	Q	|	V	|		
	4+50	0.4193	2.63	|	Q	|	V	|		
	4+55	0.4380	2.70	|	Q	|	V	|		
	5+ 0	0.4574	2.82	|	Q	|	V	|		
	5+ 5	0.4796	3.22	|	Q	|	V	|		
	5+10	0.5059	3.82	|	Q	|	V	|		
	5+15	0.5355	4.30	|	Q	|	V	|		
	5+20	0.5678	4.68	|	Q	|	V	|		
	5+25	0.6035	5.19	|	Q	|	V	|		
	5+30	0.6452	6.06	|	Q	|	V	|		
	5+35	0.6732	4.06	|	Q	|	V	|		
V|	5+40	0.6834	1.48	|	Q	|		|		
V|	5+45	0.6878	0.64	|	Q	|		|		
	5+50	0.6908	0.43	|	Q	|		|		

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V	5+55	0.6928	0.30	Q			
V	6+ 0	0.6942	0.19	Q			
V	6+ 5	0.6946	0.07	Q			
V	6+10	0.6947	0.00	Q			

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.07	0.015	(0.274)	0.006	0.010
2	0.17	0.07	0.015	(0.273)	0.006	0.010
3	0.25	0.07	0.015	(0.272)	0.006	0.010
4	0.33	0.10	0.023	(0.271)	0.009	0.014
5	0.42	0.10	0.023	(0.270)	0.009	0.014
6	0.50	0.10	0.023	(0.269)	0.009	0.014
7	0.58	0.10	0.023	(0.268)	0.009	0.014
8	0.67	0.10	0.023	(0.267)	0.009	0.014
9	0.75	0.10	0.023	(0.266)	0.009	0.014
10	0.83	0.13	0.031	(0.265)	0.012	0.019
11	0.92	0.13	0.031	(0.264)	0.012	0.019
12	1.00	0.13	0.031	(0.263)	0.012	0.019
13	1.08	0.10	0.023	(0.262)	0.009	0.014
14	1.17	0.10	0.023	(0.261)	0.009	0.014
15	1.25	0.10	0.023	(0.260)	0.009	0.014
16	1.33	0.10	0.023	(0.259)	0.009	0.014
17	1.42	0.10	0.023	(0.258)	0.009	0.014
18	1.50	0.10	0.023	(0.257)	0.009	0.014
19	1.58	0.10	0.023	(0.255)	0.009	0.014
20	1.67	0.10	0.023	(0.254)	0.009	0.014
21	1.75	0.10	0.023	(0.253)	0.009	0.014
22	1.83	0.13	0.031	(0.252)	0.012	0.019
23	1.92	0.13	0.031	(0.251)	0.012	0.019
24	2.00	0.13	0.031	(0.250)	0.012	0.019
25	2.08	0.13	0.031	(0.249)	0.012	0.019
26	2.17	0.13	0.031	(0.248)	0.012	0.019
27	2.25	0.13	0.031	(0.247)	0.012	0.019
28	2.33	0.13	0.031	(0.246)	0.012	0.019
29	2.42	0.13	0.031	(0.245)	0.012	0.019
30	2.50	0.13	0.031	(0.244)	0.012	0.019
31	2.58	0.17	0.039	(0.243)	0.015	0.024
32	2.67	0.17	0.039	(0.242)	0.015	0.024
33	2.75	0.17	0.039	(0.241)	0.015	0.024
34	2.83	0.17	0.039	(0.240)	0.015	0.024
35	2.92	0.17	0.039	(0.239)	0.015	0.024
36	3.00	0.17	0.039	(0.238)	0.015	0.024
37	3.08	0.17	0.039	(0.237)	0.015	0.024
38	3.17	0.17	0.039	(0.236)	0.015	0.024
39	3.25	0.17	0.039	(0.235)	0.015	0.024
40	3.33	0.17	0.039	(0.234)	0.015	0.024
41	3.42	0.17	0.039	(0.233)	0.015	0.024
42	3.50	0.17	0.039	(0.232)	0.015	0.024
43	3.58	0.17	0.039	(0.232)	0.015	0.024
44	3.67	0.17	0.039	(0.231)	0.015	0.024
45	3.75	0.17	0.039	(0.230)	0.015	0.024
46	3.83	0.20	0.046	(0.229)	0.018	0.029
47	3.92	0.20	0.046	(0.228)	0.018	0.029
48	4.00	0.20	0.046	(0.227)	0.018	0.029
49	4.08	0.20	0.046	(0.226)	0.018	0.029
50	4.17	0.20	0.046	(0.225)	0.018	0.029
51	4.25	0.20	0.046	(0.224)	0.018	0.029
52	4.33	0.23	0.054	(0.223)	0.021	0.034
53	4.42	0.23	0.054	(0.222)	0.021	0.034
54	4.50	0.23	0.054	(0.221)	0.021	0.034
55	4.58	0.23	0.054	(0.220)	0.021	0.034
56	4.67	0.23	0.054	(0.219)	0.021	0.034
57	4.75	0.23	0.054	(0.218)	0.021	0.034
58	4.83	0.27	0.062	(0.217)	0.023	0.038
59	4.92	0.27	0.062	(0.216)	0.023	0.038

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60	5.00	0.27	0.062	(0.215)	0.023	0.038
61	5.08	0.20	0.046	(0.214)	0.018	0.029
62	5.17	0.20	0.046	(0.213)	0.018	0.029
63	5.25	0.20	0.046	(0.212)	0.018	0.029
64	5.33	0.23	0.054	(0.212)	0.021	0.034
65	5.42	0.23	0.054	(0.211)	0.021	0.034
66	5.50	0.23	0.054	(0.210)	0.021	0.034
67	5.58	0.27	0.062	(0.209)	0.023	0.038
68	5.67	0.27	0.062	(0.208)	0.023	0.038
69	5.75	0.27	0.062	(0.207)	0.023	0.038
70	5.83	0.27	0.062	(0.206)	0.023	0.038
71	5.92	0.27	0.062	(0.205)	0.023	0.038
72	6.00	0.27	0.062	(0.204)	0.023	0.038
73	6.08	0.30	0.069	(0.203)	0.026	0.043
74	6.17	0.30	0.069	(0.202)	0.026	0.043
75	6.25	0.30	0.069	(0.202)	0.026	0.043
76	6.33	0.30	0.069	(0.201)	0.026	0.043
77	6.42	0.30	0.069	(0.200)	0.026	0.043
78	6.50	0.30	0.069	(0.199)	0.026	0.043
79	6.58	0.33	0.077	(0.198)	0.029	0.048
80	6.67	0.33	0.077	(0.197)	0.029	0.048
81	6.75	0.33	0.077	(0.196)	0.029	0.048
82	6.83	0.33	0.077	(0.195)	0.029	0.048
83	6.92	0.33	0.077	(0.194)	0.029	0.048
84	7.00	0.33	0.077	(0.193)	0.029	0.048
85	7.08	0.33	0.077	(0.193)	0.029	0.048
86	7.17	0.33	0.077	(0.192)	0.029	0.048
87	7.25	0.33	0.077	(0.191)	0.029	0.048
88	7.33	0.37	0.085	(0.190)	0.032	0.053
89	7.42	0.37	0.085	(0.189)	0.032	0.053
90	7.50	0.37	0.085	(0.188)	0.032	0.053
91	7.58	0.40	0.093	(0.187)	0.035	0.057
92	7.67	0.40	0.093	(0.187)	0.035	0.057
93	7.75	0.40	0.093	(0.186)	0.035	0.057
94	7.83	0.43	0.100	(0.185)	0.038	0.062
95	7.92	0.43	0.100	(0.184)	0.038	0.062
96	8.00	0.43	0.100	(0.183)	0.038	0.062
97	8.08	0.50	0.116	(0.182)	0.044	0.072
98	8.17	0.50	0.116	(0.181)	0.044	0.072
99	8.25	0.50	0.116	(0.181)	0.044	0.072
100	8.33	0.50	0.116	(0.180)	0.044	0.072
101	8.42	0.50	0.116	(0.179)	0.044	0.072
102	8.50	0.50	0.116	(0.178)	0.044	0.072
103	8.58	0.53	0.124	(0.177)	0.047	0.077
104	8.67	0.53	0.124	(0.176)	0.047	0.077
105	8.75	0.53	0.124	(0.176)	0.047	0.077
106	8.83	0.57	0.131	(0.175)	0.050	0.081
107	8.92	0.57	0.131	(0.174)	0.050	0.081
108	9.00	0.57	0.131	(0.173)	0.050	0.081
109	9.08	0.63	0.147	(0.172)	0.056	0.091
110	9.17	0.63	0.147	(0.171)	0.056	0.091
111	9.25	0.63	0.147	(0.171)	0.056	0.091
112	9.33	0.67	0.154	(0.170)	0.059	0.096
113	9.42	0.67	0.154	(0.169)	0.059	0.096
114	9.50	0.67	0.154	(0.168)	0.059	0.096
115	9.58	0.70	0.162	(0.167)	0.062	0.101
116	9.67	0.70	0.162	(0.167)	0.062	0.101
117	9.75	0.70	0.162	(0.166)	0.062	0.101
118	9.83	0.73	0.170	(0.165)	0.065	0.105
119	9.92	0.73	0.170	(0.164)	0.065	0.105

120	10.00	0.73	0.170	(0.163)	0.065	0.105
121	10.08	0.50	0.116	(0.163)	0.044	0.072
122	10.17	0.50	0.116	(0.162)	0.044	0.072
123	10.25	0.50	0.116	(0.161)	0.044	0.072
124	10.33	0.50	0.116	(0.160)	0.044	0.072
125	10.42	0.50	0.116	(0.159)	0.044	0.072
126	10.50	0.50	0.116	(0.159)	0.044	0.072
127	10.58	0.67	0.154	(0.158)	0.059	0.096
128	10.67	0.67	0.154	(0.157)	0.059	0.096
129	10.75	0.67	0.154	(0.156)	0.059	0.096
130	10.83	0.67	0.154	(0.156)	0.059	0.096
131	10.92	0.67	0.154	(0.155)	0.059	0.096
132	11.00	0.67	0.154	(0.154)	0.059	0.096
133	11.08	0.63	0.147	(0.153)	0.056	0.091
134	11.17	0.63	0.147	(0.153)	0.056	0.091
135	11.25	0.63	0.147	(0.152)	0.056	0.091
136	11.33	0.63	0.147	(0.151)	0.056	0.091
137	11.42	0.63	0.147	(0.150)	0.056	0.091
138	11.50	0.63	0.147	(0.150)	0.056	0.091
139	11.58	0.57	0.131	(0.149)	0.050	0.081
140	11.67	0.57	0.131	(0.148)	0.050	0.081
141	11.75	0.57	0.131	(0.147)	0.050	0.081
142	11.83	0.60	0.139	(0.147)	0.053	0.086
143	11.92	0.60	0.139	(0.146)	0.053	0.086
144	12.00	0.60	0.139	(0.145)	0.053	0.086
145	12.08	0.83	0.193	(0.144)	0.073	0.120
146	12.17	0.83	0.193	(0.144)	0.073	0.120
147	12.25	0.83	0.193	(0.143)	0.073	0.120
148	12.33	0.87	0.201	(0.142)	0.076	0.124
149	12.42	0.87	0.201	(0.142)	0.076	0.124
150	12.50	0.87	0.201	(0.141)	0.076	0.124
151	12.58	0.93	0.216	(0.140)	0.082	0.134
152	12.67	0.93	0.216	(0.139)	0.082	0.134
153	12.75	0.93	0.216	(0.139)	0.082	0.134
154	12.83	0.97	0.224	(0.138)	0.085	0.139
155	12.92	0.97	0.224	(0.137)	0.085	0.139
156	13.00	0.97	0.224	(0.137)	0.085	0.139
157	13.08	1.13	0.262	(0.136)	0.100	0.163
158	13.17	1.13	0.262	(0.135)	0.100	0.163
159	13.25	1.13	0.262	(0.135)	0.100	0.163
160	13.33	1.13	0.262	(0.134)	0.100	0.163
161	13.42	1.13	0.262	(0.133)	0.100	0.163
162	13.50	1.13	0.262	(0.133)	0.100	0.163
163	13.58	0.77	0.178	(0.132)	0.067	0.110
164	13.67	0.77	0.178	(0.131)	0.067	0.110
165	13.75	0.77	0.178	(0.130)	0.067	0.110
166	13.83	0.77	0.178	(0.130)	0.067	0.110
167	13.92	0.77	0.178	(0.129)	0.067	0.110
168	14.00	0.77	0.178	(0.129)	0.067	0.110
169	14.08	0.90	0.208	(0.128)	0.079	0.129
170	14.17	0.90	0.208	(0.127)	0.079	0.129
171	14.25	0.90	0.208	(0.127)	0.079	0.129
172	14.33	0.87	0.201	(0.126)	0.076	0.124
173	14.42	0.87	0.201	(0.125)	0.076	0.124
174	14.50	0.87	0.201	(0.125)	0.076	0.124
175	14.58	0.87	0.201	(0.124)	0.076	0.124
176	14.67	0.87	0.201	(0.123)	0.076	0.124
177	14.75	0.87	0.201	(0.123)	0.076	0.124
178	14.83	0.83	0.193	(0.122)	0.073	0.120
179	14.92	0.83	0.193	(0.121)	0.073	0.120

180	15.00	0.83	0.193	(0.121)	0.073	0.120
181	15.08	0.80	0.185	(0.120)	0.070	0.115
182	15.17	0.80	0.185	(0.120)	0.070	0.115
183	15.25	0.80	0.185	(0.119)	0.070	0.115
184	15.33	0.77	0.178	(0.118)	0.067	0.110
185	15.42	0.77	0.178	(0.118)	0.067	0.110
186	15.50	0.77	0.178	(0.117)	0.067	0.110
187	15.58	0.63	0.147	(0.117)	0.056	0.091
188	15.67	0.63	0.147	(0.116)	0.056	0.091
189	15.75	0.63	0.147	(0.115)	0.056	0.091
190	15.83	0.63	0.147	(0.115)	0.056	0.091
191	15.92	0.63	0.147	(0.114)	0.056	0.091
192	16.00	0.63	0.147	(0.114)	0.056	0.091
193	16.08	0.13	0.031	(0.113)	0.012	0.019
194	16.17	0.13	0.031	(0.112)	0.012	0.019
195	16.25	0.13	0.031	(0.112)	0.012	0.019
196	16.33	0.13	0.031	(0.111)	0.012	0.019
197	16.42	0.13	0.031	(0.111)	0.012	0.019
198	16.50	0.13	0.031	(0.110)	0.012	0.019
199	16.58	0.10	0.023	(0.110)	0.009	0.014
200	16.67	0.10	0.023	(0.109)	0.009	0.014
201	16.75	0.10	0.023	(0.109)	0.009	0.014
202	16.83	0.10	0.023	(0.108)	0.009	0.014
203	16.92	0.10	0.023	(0.107)	0.009	0.014
204	17.00	0.10	0.023	(0.107)	0.009	0.014
205	17.08	0.17	0.039	(0.106)	0.015	0.024
206	17.17	0.17	0.039	(0.106)	0.015	0.024
207	17.25	0.17	0.039	(0.105)	0.015	0.024
208	17.33	0.17	0.039	(0.105)	0.015	0.024
209	17.42	0.17	0.039	(0.104)	0.015	0.024
210	17.50	0.17	0.039	(0.104)	0.015	0.024
211	17.58	0.17	0.039	(0.103)	0.015	0.024
212	17.67	0.17	0.039	(0.103)	0.015	0.024
213	17.75	0.17	0.039	(0.102)	0.015	0.024
214	17.83	0.13	0.031	(0.102)	0.012	0.019
215	17.92	0.13	0.031	(0.101)	0.012	0.019
216	18.00	0.13	0.031	(0.101)	0.012	0.019
217	18.08	0.13	0.031	(0.100)	0.012	0.019
218	18.17	0.13	0.031	(0.100)	0.012	0.019
219	18.25	0.13	0.031	(0.099)	0.012	0.019
220	18.33	0.13	0.031	(0.099)	0.012	0.019
221	18.42	0.13	0.031	(0.098)	0.012	0.019
222	18.50	0.13	0.031	(0.098)	0.012	0.019
223	18.58	0.10	0.023	(0.097)	0.009	0.014
224	18.67	0.10	0.023	(0.097)	0.009	0.014
225	18.75	0.10	0.023	(0.096)	0.009	0.014
226	18.83	0.07	0.015	(0.096)	0.006	0.010
227	18.92	0.07	0.015	(0.095)	0.006	0.010
228	19.00	0.07	0.015	(0.095)	0.006	0.010
229	19.08	0.10	0.023	(0.094)	0.009	0.014
230	19.17	0.10	0.023	(0.094)	0.009	0.014
231	19.25	0.10	0.023	(0.094)	0.009	0.014
232	19.33	0.13	0.031	(0.093)	0.012	0.019
233	19.42	0.13	0.031	(0.093)	0.012	0.019
234	19.50	0.13	0.031	(0.092)	0.012	0.019
235	19.58	0.10	0.023	(0.092)	0.009	0.014
236	19.67	0.10	0.023	(0.091)	0.009	0.014
237	19.75	0.10	0.023	(0.091)	0.009	0.014
238	19.83	0.07	0.015	(0.091)	0.006	0.010
239	19.92	0.07	0.015	(0.090)	0.006	0.010

Peak flow rate of this hydrograph = 0.656(CFS)

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24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

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 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0001		0.02	Q	|	|	|
0+10	0.0004		0.04	Q	|	|	|
0+15	0.0007		0.04	Q	|	|	|
0+20	0.0010		0.05	Q	|	|	|
0+25	0.0014		0.06	Q	|	|	|
0+30	0.0018		0.06	Q	|	|	|
0+35	0.0022		0.06	Q	|	|	|
0+40	0.0026		0.06	Q	|	|	|
0+45	0.0030		0.06	Q	|	|	|
0+50	0.0035		0.07	Q	|	|	|
0+55	0.0040		0.08	Q	|	|	|
1+ 0	0.0045		0.08	Q	|	|	|
1+ 5	0.0050		0.07	Q	|	|	|
1+10	0.0054		0.06	Q	|	|	|
1+15	0.0058		0.06	Q	|	|	|
1+20	0.0062		0.06	Q	|	|	|
1+25	0.0066		0.06	Q	|	|	|
1+30	0.0070		0.06	Q			
1+35	0.0074		0.06	Q			
1+40	0.0078		0.06	Q			
1+45	0.0082		0.06	Q			
1+50	0.0087		0.07	Q			

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1+55	0.0092	0.08	Q			
2+ 0	0.0097	0.08	Q			
2+ 5	0.0102	0.08	QV			
2+10	0.0108	0.08	QV			
2+15	0.0113	0.08	QV			
2+20	0.0118	0.08	QV	|	|	|
2+25	0.0124	0.08	QV	|	|	|
2+30	0.0129	0.08	QV	|	|	|
2+35	0.0135	0.09	QV	|	|	|
2+40	0.0142	0.10	QV	|	|	|
2+45	0.0148	0.10	QV	|	|	|
2+50	0.0155	0.10	QV	|	|	|
2+55	0.0162	0.10	QV	|	|	|
3+ 0	0.0168	0.10	QV	|	|	|
3+ 5	0.0175	0.10	QV	|	|	|
3+10	0.0182	0.10	QV	|	|	|
3+15	0.0188	0.10	QV	|	|	|
3+20	0.0195	0.10	QV	|	|	|
3+25	0.0202	0.10	Q V	|	|	|
3+30	0.0208	0.10	Q V	|	|	|
3+35	0.0215	0.10	Q V	|	|	|
3+40	0.0221	0.10	Q V	|	|	|
3+45	0.0228	0.10	Q V	|	|	|
3+50	0.0236	0.11	Q V	|	|	|
3+55	0.0243	0.12	Q V	|	|	|
4+ 0	0.0251	0.12	Q V			
4+ 5	0.0259	0.12	Q V			
4+10	0.0267	0.12	Q V			
4+15	0.0275	0.12	Q V			
4+20	0.0284	0.13	Q V			

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4+25	0.0293	0.13	Q	V			
4+30	0.0303	0.14	Q	V			
4+35	0.0312	0.14	Q	V			
4+40	0.0321	0.14	Q	V			
4+45	0.0331	0.14	Q	V			
4+50	0.0341	0.15	Q	V	|	|	|
4+55	0.0351	0.15	Q	V	|	|	|
5+ 0	0.0362	0.15	Q	V	|	|	|
5+ 5	0.0371	0.13	Q	V	|	|	|
5+10	0.0379	0.12	Q	V	|	|	|
5+15	0.0387	0.12	Q	V	|	|	|
5+20	0.0396	0.13	Q	V	|	|	|
5+25	0.0405	0.13	Q	V	|	|	|
5+30	0.0414	0.14	Q	V	|	|	|
5+35	0.0424	0.15	Q	V	|	|	|
5+40	0.0435	0.15	Q	V	|	|	|
5+45	0.0446	0.15	Q	V	|	|	|
5+50	0.0456	0.15	Q	V	|	|	|
5+55	0.0467	0.15	Q	V	|	|	|
6+ 0	0.0477	0.15	Q	V	|	|	|
6+ 5	0.0489	0.16	Q	V	|	|	|
6+10	0.0501	0.17	Q	V	|	|	|
6+15	0.0513	0.17	Q	V	|	|	|
6+20	0.0525	0.17	Q	V	|	|	|
6+25	0.0537	0.17	Q	V	|	|	|
6+30	0.0549	0.17	Q	V			
6+35	0.0561	0.18	Q	V			
6+40	0.0575	0.19	Q	V			
6+45	0.0588	0.19	Q	V			
6+50	0.0601	0.19	Q	V			

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6+55	0.0614	0.19	Q	V			
7+ 0	0.0628	0.19	Q	V			
7+ 5	0.0641	0.19	Q	V			
7+10	0.0654	0.19	Q	V			
7+15	0.0668	0.19	Q	V			
7+20	0.0682	0.20	Q	V	|	|	|
7+25	0.0696	0.21	Q	V	|	|	|
7+30	0.0711	0.21	Q	V	|	|	|
7+35	0.0726	0.22	Q	V	|	|	|
7+40	0.0742	0.23	Q	V	|	|	|
7+45	0.0758	0.23	Q	V	|	|	|
7+50	0.0775	0.24	Q	V	|	|	|
7+55	0.0792	0.25	|Q	V	|	|	|
8+ 0	0.0809	0.25	|Q	V	|	|	|
8+ 5	0.0828	0.27	|Q	V	|	|	|
8+10	0.0848	0.29	|Q	V	|	|	|
8+15	0.0868	0.29	|Q	V	|	|	|
8+20	0.0888	0.29	|Q	V	|	|	|
8+25	0.0908	0.29	|Q	V|	|	|	|
8+30	0.0928	0.29	|Q	V|	|	|	|
8+35	0.0948	0.30	|Q	V|	|	|	|
8+40	0.0970	0.31	|Q	V|	|	|	|
8+45	0.0991	0.31	|Q	V|	|	|	|
8+50	0.1013	0.32	|Q	V	|	|	|
8+55	0.1035	0.33	|Q	V	|	|	|
9+ 0	0.1058	0.33	|Q	V	|	|	|
9+ 5	0.1082	0.35	|Q	V	|	|	|
9+10	0.1107	0.37	|Q	|V	|	|	|
9+15	0.1133	0.37	|Q	|V	|	|	|
9+20	0.1159	0.38	|Q	|V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+25	0.1185	0.39	|Q	|V	|	|
9+30	0.1212	0.39	|Q	|V	|	|
9+35	0.1239	0.40	|Q	|V	|	|
9+40	0.1267	0.40	|Q	|V	|	|
9+45	0.1295	0.41	|Q	|V	|	|
9+50	0.1323	0.42	|Q	|V	|	|
9+55	0.1353	0.42	|Q	|V	|	|
10+ 0	0.1382	0.42	|Q	|V	|	|
10+ 5	0.1406	0.35	|Q	|V	|	|
10+10	0.1426	0.29	|Q	|V	|	|
10+15	0.1446	0.29	|Q	|V	|	|
10+20	0.1466	0.29	|Q	|V	|	|
10+25	0.1486	0.29	|Q	|V	|	|
10+30	0.1506	0.29	|Q	|V	|	|
10+35	0.1530	0.34	|Q	|V	|	|
10+40	0.1556	0.38	|Q	|V	|	|
10+45	0.1583	0.39	|Q	|V	|	|
10+50	0.1609	0.39	|Q	|V	|	|
10+55	0.1636	0.39	|Q	|V	|	|
11+ 0	0.1662	0.39	|Q	|V	|	|
11+ 5	0.1688	0.38	|Q	|V	|	|
11+10	0.1714	0.37	|Q	|V	|	|
11+15	0.1739	0.37	|Q	|V	|	|
11+20	0.1764	0.37	|Q	|V	|	|
11+25	0.1789	0.37	|Q	|V	|	|
11+30	0.1815	0.37	|Q	|V	|	|
11+35	0.1838	0.35	|Q	|V	|	|
11+40	0.1861	0.33	|Q	|V	|	|
11+45	0.1884	0.33	|Q	|V	|	|
11+50	0.1907	0.34	|Q	|V	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+55	0.1931	0.35	|Q	|	v|	|
12+ 0	0.1955	0.35	|Q	|	v|	|
12+ 5	0.1984	0.42	|Q	|	v|	|
12+10	0.2017	0.48	|Q	|	v	|
12+15	0.2050	0.48	|Q	|	v	|
12+20	0.2084	0.49	|Q	|	v	|
12+25	0.2119	0.50	|Q	|	|v	|
12+30	0.2153	0.50	|Q	|	|v	|
12+35	0.2189	0.52	|Q	|	|v	|
12+40	0.2226	0.54	|Q	|	|v	|
12+45	0.2264	0.54	|Q	|	|v	|
12+50	0.2301	0.55	|Q	|	|v	|
12+55	0.2340	0.56	|Q	|	|v	|
13+ 0	0.2379	0.56	|Q	|	|v	|
13+ 5	0.2421	0.61	|Q	|	|v	|
13+10	0.2466	0.65	|Q	|	|v	|
13+15	0.2511	0.66	|Q	|	|v	|
13+20	0.2556	0.66	|Q	|	|v	|
13+25	0.2601	0.66	|Q	|	|v	|
13+30	0.2647	0.66	|Q	|	|v	|
13+35	0.2684	0.54	|Q	|	|v	|
13+40	0.2715	0.45	|Q	|	|v	|
13+45	0.2745	0.44	|Q	|	|v	|
13+50	0.2776	0.44	|Q	|	|v	|
13+55	0.2807	0.44	|Q	|	|v	|
14+ 0	0.2837	0.44	|Q	|	|v	|
14+ 5	0.2871	0.49	|Q	|	|v	|
14+10	0.2906	0.52	|Q	|	|v|	|
14+15	0.2942	0.52	|Q	|	|v|	|
14+20	0.2977	0.51	|Q	|	|v|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+25	0.3012	0.50	| Q	|	|	V
14+30	0.3047	0.50	| Q	|	|	V
14+35	0.3081	0.50	| Q	|	|	V
14+40	0.3116	0.50	| Q	|	|	|V
14+45	0.3150	0.50	| Q	|	|	|V
14+50	0.3184	0.49	|Q	|	|	|V
14+55	0.3217	0.48	|Q	|	|	| V
15+ 0	0.3251	0.48	|Q	|	|	| V
15+ 5	0.3283	0.47	|Q	|	|	| V
15+10	0.3315	0.46	|Q	|	|	| V
15+15	0.3347	0.46	|Q	|	|	| V
15+20	0.3378	0.45	|Q	|	|	| V
15+25	0.3409	0.44	|Q	|	|	| V
15+30	0.3439	0.44	|Q	|	|	| V
15+35	0.3467	0.40	|Q	|	|	| V
15+40	0.3492	0.37	|Q	|	|	| V
15+45	0.3518	0.37	|Q	|	|	| V
15+50	0.3543	0.37	|Q	|	|	| V
15+55	0.3568	0.37	|Q	|	|	| V
16+ 0	0.3594	0.37	|Q	|	|	| V
16+ 5	0.3608	0.21	Q	|	|	| V
16+10	0.3614	0.09	Q	|	|	| V
16+15	0.3619	0.08	Q	|	|	| V
16+20	0.3624	0.08	Q	|	|	| V
16+25	0.3630	0.08	Q	|	|	| V
16+30	0.3635	0.08	Q	|	|	| V
16+35	0.3640	0.07	Q	|	|	| V
16+40	0.3644	0.06	Q	|	|	| V
16+45	0.3648	0.06	Q	|	|	| V
16+50	0.3652	0.06	Q	|	|	| V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

16+55	0.3656	0.06	Q	|	|	|	V
17+ 0	0.3660	0.06	Q	|	|	|	V
17+ 5	0.3665	0.08	Q	|	|	|	V
17+10	0.3672	0.10	Q	|	|	|	V
17+15	0.3678	0.10	Q	|	|	|	V
17+20	0.3685	0.10	Q	|	|	|	V
17+25	0.3692	0.10	Q	|	|	|	V
17+30	0.3698	0.10	Q	|	|	|	V
17+35	0.3705	0.10	Q	|	|	|	V
17+40	0.3712	0.10	Q	|	|	|	V
17+45	0.3718	0.10	Q	|	|	|	V
17+50	0.3724	0.09	Q	|	|	|	V
17+55	0.3729	0.08	Q	|	|	|	V
18+ 0	0.3735	0.08	Q	|	|	|	V
18+ 5	0.3740	0.08	Q	|	|	|	V
18+10	0.3745	0.08	Q	|	|	|	V
18+15	0.3751	0.08	Q	|	|	|	V
18+20	0.3756	0.08	Q	|	|	|	V
18+25	0.3761	0.08	Q	|	|	|	V
18+30	0.3767	0.08	Q	|	|	|	V
18+35	0.3771	0.07	Q	|	|	|	V
18+40	0.3775	0.06	Q	|	|	|	V
18+45	0.3779	0.06	Q	|	|	|	V
18+50	0.3783	0.05	Q	|	|	|	V
18+55	0.3785	0.04	Q	|	|	|	V
19+ 0	0.3788	0.04	Q				V
19+ 5	0.3791	0.05	Q				V
19+10	0.3795	0.06	Q				V
19+15	0.3799	0.06	Q				V
19+20	0.3804	0.07	Q				V

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	19+25	0.3809	0.08	Q				V
	19+30	0.3815	0.08	Q				V
	19+35	0.3819	0.07	Q				V
	19+40	0.3823	0.06	Q				V
	19+45	0.3827	0.06	Q				V
	19+50	0.3830	0.05	Q	|	|	|	V
	19+55	0.3833	0.04	Q	|	|	|	V
	20+ 0	0.3836	0.04	Q	|	|	|	V
	20+ 5	0.3839	0.05	Q	|	|	|	V
	20+10	0.3843	0.06	Q	|	|	|	V
	20+15	0.3847	0.06	Q	|	|	|	V
	20+20	0.3851	0.06	Q	|	|	|	V
	20+25	0.3855	0.06	Q	|	|	|	V
	20+30	0.3859	0.06	Q	|	|	|	V
	20+35	0.3863	0.06	Q	|	|	|	V
	20+40	0.3867	0.06	Q	|	|	|	V
	20+45	0.3871	0.06	Q	|	|	|	V
	20+50	0.3874	0.05	Q	|	|	|	V
	20+55	0.3877	0.04	Q	|	|	|	V
	21+ 0	0.3880	0.04	Q	|	|	|	V
	21+ 5	0.3883	0.05	Q	|	|	|	V
	21+10	0.3887	0.06	Q	|	|	|	V
	21+15	0.3891	0.06	Q	|	|	|	V
V|	21+20	0.3894	0.05	Q	|	|	|	V
V|	21+25	0.3897	0.04	Q	|	|	|	V
V|	21+30	0.3900	0.04	Q	|	|	|	V
V	21+35	0.3903	0.05	Q				V
V	21+40	0.3907	0.06	Q				V
V	21+45	0.3911	0.06	Q				V
V	21+50	0.3914	0.05	Q				V

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V	21+55	0.3917	0.04	Q			
V	22+ 0	0.3920	0.04	Q			
V	22+ 5	0.3923	0.05	Q			
V	22+10	0.3927	0.06	Q			
V	22+15	0.3931	0.06	Q			
V|	22+20	0.3934	0.05	Q	|	|	|
V|	22+25	0.3937	0.04	Q	|	|	|
V|	22+30	0.3939	0.04	Q	|	|	|
V|	22+35	0.3942	0.04	Q	|	|	|
V|	22+40	0.3945	0.04	Q	|	|	|
V|	22+45	0.3947	0.04	Q	|	|	|
V|	22+50	0.3950	0.04	Q	|	|	|
V|	22+55	0.3953	0.04	Q	|	|	|
V|	23+ 0	0.3955	0.04	Q	|	|	|
V|	23+ 5	0.3958	0.04	Q	|	|	|
V|	23+10	0.3961	0.04	Q	|	|	|
V|	23+15	0.3963	0.04	Q	|	|	|
V|	23+20	0.3966	0.04	Q	|	|	|
V|	23+25	0.3969	0.04	Q	|	|	|
V|	23+30	0.3971	0.04	Q	|	|	|
V|	23+35	0.3974	0.04	Q	|	|	|
V|	23+40	0.3977	0.04	Q	|	|	|
V|	23+45	0.3979	0.04	Q	|	|	|
V|	23+50	0.3982	0.04	Q	|	|	|
V|	23+55	0.3985	0.04	Q	|	|	|
V|	24+ 0	0.3987	0.04	Q	|	|	|
V|	24+ 5	0.3989	0.02	Q	|	|	|
V|	24+10	0.3989	0.00	Q	|	|	|
V							

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version

8.2

Study date 11/09/21 File: moval33post245.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4.00 1.93 7.72

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 4.64 18.56

STORM EVENT (YEAR) = 5.00
 Area Averaged 2-Year Rainfall = 1.930(In)
 Area Averaged 100-Year Rainfall = 4.640(In)

Point rain (area averaged) = 2.565(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.565(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						Sum (F) =
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)	Effective
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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.07	0.021	(0.274)	0.008	0.013
2	0.17	0.07	0.021	(0.273)	0.008	0.013
3	0.25	0.07	0.021	(0.272)	0.008	0.013
4	0.33	0.10	0.031	(0.271)	0.012	0.019
5	0.42	0.10	0.031	(0.270)	0.012	0.019
6	0.50	0.10	0.031	(0.269)	0.012	0.019
7	0.58	0.10	0.031	(0.268)	0.012	0.019
8	0.67	0.10	0.031	(0.267)	0.012	0.019
9	0.75	0.10	0.031	(0.266)	0.012	0.019
10	0.83	0.13	0.041	(0.265)	0.016	0.025
11	0.92	0.13	0.041	(0.264)	0.016	0.025
12	1.00	0.13	0.041	(0.263)	0.016	0.025
13	1.08	0.10	0.031	(0.262)	0.012	0.019
14	1.17	0.10	0.031	(0.261)	0.012	0.019
15	1.25	0.10	0.031	(0.260)	0.012	0.019
16	1.33	0.10	0.031	(0.259)	0.012	0.019
17	1.42	0.10	0.031	(0.258)	0.012	0.019
18	1.50	0.10	0.031	(0.257)	0.012	0.019
19	1.58	0.10	0.031	(0.255)	0.012	0.019
20	1.67	0.10	0.031	(0.254)	0.012	0.019
21	1.75	0.10	0.031	(0.253)	0.012	0.019
22	1.83	0.13	0.041	(0.252)	0.016	0.025
23	1.92	0.13	0.041	(0.251)	0.016	0.025
24	2.00	0.13	0.041	(0.250)	0.016	0.025
25	2.08	0.13	0.041	(0.249)	0.016	0.025
26	2.17	0.13	0.041	(0.248)	0.016	0.025
27	2.25	0.13	0.041	(0.247)	0.016	0.025
28	2.33	0.13	0.041	(0.246)	0.016	0.025
29	2.42	0.13	0.041	(0.245)	0.016	0.025
30	2.50	0.13	0.041	(0.244)	0.016	0.025
31	2.58	0.17	0.051	(0.243)	0.019	0.032
32	2.67	0.17	0.051	(0.242)	0.019	0.032
33	2.75	0.17	0.051	(0.241)	0.019	0.032
34	2.83	0.17	0.051	(0.240)	0.019	0.032
35	2.92	0.17	0.051	(0.239)	0.019	0.032
36	3.00	0.17	0.051	(0.238)	0.019	0.032
37	3.08	0.17	0.051	(0.237)	0.019	0.032
38	3.17	0.17	0.051	(0.236)	0.019	0.032
39	3.25	0.17	0.051	(0.235)	0.019	0.032
40	3.33	0.17	0.051	(0.234)	0.019	0.032
41	3.42	0.17	0.051	(0.233)	0.019	0.032
42	3.50	0.17	0.051	(0.232)	0.019	0.032
43	3.58	0.17	0.051	(0.232)	0.019	0.032
44	3.67	0.17	0.051	(0.231)	0.019	0.032
45	3.75	0.17	0.051	(0.230)	0.019	0.032
46	3.83	0.20	0.062	(0.229)	0.023	0.038
47	3.92	0.20	0.062	(0.228)	0.023	0.038
48	4.00	0.20	0.062	(0.227)	0.023	0.038
49	4.08	0.20	0.062	(0.226)	0.023	0.038
50	4.17	0.20	0.062	(0.225)	0.023	0.038
51	4.25	0.20	0.062	(0.224)	0.023	0.038
52	4.33	0.23	0.072	(0.223)	0.027	0.045
53	4.42	0.23	0.072	(0.222)	0.027	0.045
54	4.50	0.23	0.072	(0.221)	0.027	0.045
55	4.58	0.23	0.072	(0.220)	0.027	0.045
56	4.67	0.23	0.072	(0.219)	0.027	0.045
57	4.75	0.23	0.072	(0.218)	0.027	0.045
58	4.83	0.27	0.082	(0.217)	0.031	0.051
59	4.92	0.27	0.082	(0.216)	0.031	0.051

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

60	5.00	0.27	0.082	(0.215)	0.031	0.051
61	5.08	0.20	0.062	(0.214)	0.023	0.038
62	5.17	0.20	0.062	(0.213)	0.023	0.038
63	5.25	0.20	0.062	(0.212)	0.023	0.038
64	5.33	0.23	0.072	(0.212)	0.027	0.045
65	5.42	0.23	0.072	(0.211)	0.027	0.045
66	5.50	0.23	0.072	(0.210)	0.027	0.045
67	5.58	0.27	0.082	(0.209)	0.031	0.051
68	5.67	0.27	0.082	(0.208)	0.031	0.051
69	5.75	0.27	0.082	(0.207)	0.031	0.051
70	5.83	0.27	0.082	(0.206)	0.031	0.051
71	5.92	0.27	0.082	(0.205)	0.031	0.051
72	6.00	0.27	0.082	(0.204)	0.031	0.051
73	6.08	0.30	0.092	(0.203)	0.035	0.057
74	6.17	0.30	0.092	(0.202)	0.035	0.057
75	6.25	0.30	0.092	(0.202)	0.035	0.057
76	6.33	0.30	0.092	(0.201)	0.035	0.057
77	6.42	0.30	0.092	(0.200)	0.035	0.057
78	6.50	0.30	0.092	(0.199)	0.035	0.057
79	6.58	0.33	0.103	(0.198)	0.039	0.064
80	6.67	0.33	0.103	(0.197)	0.039	0.064
81	6.75	0.33	0.103	(0.196)	0.039	0.064
82	6.83	0.33	0.103	(0.195)	0.039	0.064
83	6.92	0.33	0.103	(0.194)	0.039	0.064
84	7.00	0.33	0.103	(0.193)	0.039	0.064
85	7.08	0.33	0.103	(0.193)	0.039	0.064
86	7.17	0.33	0.103	(0.192)	0.039	0.064
87	7.25	0.33	0.103	(0.191)	0.039	0.064
88	7.33	0.37	0.113	(0.190)	0.043	0.070
89	7.42	0.37	0.113	(0.189)	0.043	0.070
90	7.50	0.37	0.113	(0.188)	0.043	0.070
91	7.58	0.40	0.123	(0.187)	0.047	0.076
92	7.67	0.40	0.123	(0.187)	0.047	0.076
93	7.75	0.40	0.123	(0.186)	0.047	0.076
94	7.83	0.43	0.133	(0.185)	0.051	0.083
95	7.92	0.43	0.133	(0.184)	0.051	0.083
96	8.00	0.43	0.133	(0.183)	0.051	0.083
97	8.08	0.50	0.154	(0.182)	0.058	0.095
98	8.17	0.50	0.154	(0.181)	0.058	0.095
99	8.25	0.50	0.154	(0.181)	0.058	0.095
100	8.33	0.50	0.154	(0.180)	0.058	0.095
101	8.42	0.50	0.154	(0.179)	0.058	0.095
102	8.50	0.50	0.154	(0.178)	0.058	0.095
103	8.58	0.53	0.164	(0.177)	0.062	0.102
104	8.67	0.53	0.164	(0.176)	0.062	0.102
105	8.75	0.53	0.164	(0.176)	0.062	0.102
106	8.83	0.57	0.174	(0.175)	0.066	0.108
107	8.92	0.57	0.174	(0.174)	0.066	0.108
108	9.00	0.57	0.174	(0.173)	0.066	0.108
109	9.08	0.63	0.195	(0.172)	0.074	0.121
110	9.17	0.63	0.195	(0.171)	0.074	0.121
111	9.25	0.63	0.195	(0.171)	0.074	0.121
112	9.33	0.67	0.205	(0.170)	0.078	0.127
113	9.42	0.67	0.205	(0.169)	0.078	0.127
114	9.50	0.67	0.205	(0.168)	0.078	0.127
115	9.58	0.70	0.215	(0.167)	0.082	0.134
116	9.67	0.70	0.215	(0.167)	0.082	0.134
117	9.75	0.70	0.215	(0.166)	0.082	0.134
118	9.83	0.73	0.226	(0.165)	0.086	0.140
119	9.92	0.73	0.226	(0.164)	0.086	0.140

120	10.00	0.73	0.226	(0.163)	0.086	0.140
121	10.08	0.50	0.154	(0.163)	0.058	0.095
122	10.17	0.50	0.154	(0.162)	0.058	0.095
123	10.25	0.50	0.154	(0.161)	0.058	0.095
124	10.33	0.50	0.154	(0.160)	0.058	0.095
125	10.42	0.50	0.154	(0.159)	0.058	0.095
126	10.50	0.50	0.154	(0.159)	0.058	0.095
127	10.58	0.67	0.205	(0.158)	0.078	0.127
128	10.67	0.67	0.205	(0.157)	0.078	0.127
129	10.75	0.67	0.205	(0.156)	0.078	0.127
130	10.83	0.67	0.205	(0.156)	0.078	0.127
131	10.92	0.67	0.205	(0.155)	0.078	0.127
132	11.00	0.67	0.205	(0.154)	0.078	0.127
133	11.08	0.63	0.195	(0.153)	0.074	0.121
134	11.17	0.63	0.195	(0.153)	0.074	0.121
135	11.25	0.63	0.195	(0.152)	0.074	0.121
136	11.33	0.63	0.195	(0.151)	0.074	0.121
137	11.42	0.63	0.195	(0.150)	0.074	0.121
138	11.50	0.63	0.195	(0.150)	0.074	0.121
139	11.58	0.57	0.174	(0.149)	0.066	0.108
140	11.67	0.57	0.174	(0.148)	0.066	0.108
141	11.75	0.57	0.174	(0.147)	0.066	0.108
142	11.83	0.60	0.185	(0.147)	0.070	0.114
143	11.92	0.60	0.185	(0.146)	0.070	0.114
144	12.00	0.60	0.185	(0.145)	0.070	0.114
145	12.08	0.83	0.256	(0.144)	0.097	0.159
146	12.17	0.83	0.256	(0.144)	0.097	0.159
147	12.25	0.83	0.256	(0.143)	0.097	0.159
148	12.33	0.87	0.267	(0.142)	0.101	0.165
149	12.42	0.87	0.267	(0.142)	0.101	0.165
150	12.50	0.87	0.267	(0.141)	0.101	0.165
151	12.58	0.93	0.287	(0.140)	0.109	0.178
152	12.67	0.93	0.287	(0.139)	0.109	0.178
153	12.75	0.93	0.287	(0.139)	0.109	0.178
154	12.83	0.97	0.298	(0.138)	0.113	0.184
155	12.92	0.97	0.298	(0.137)	0.113	0.184
156	13.00	0.97	0.298	(0.137)	0.113	0.184
157	13.08	1.13	0.349	(0.136)	0.133	0.216
158	13.17	1.13	0.349	(0.135)	0.133	0.216
159	13.25	1.13	0.349	(0.135)	0.133	0.216
160	13.33	1.13	0.349	(0.134)	0.133	0.216
161	13.42	1.13	0.349	(0.133)	0.133	0.216
162	13.50	1.13	0.349	0.133 (0.133)	0.133	0.216
163	13.58	0.77	0.236	(0.132)	0.090	0.146
164	13.67	0.77	0.236	(0.131)	0.090	0.146
165	13.75	0.77	0.236	(0.130)	0.090	0.146
166	13.83	0.77	0.236	(0.130)	0.090	0.146
167	13.92	0.77	0.236	(0.129)	0.090	0.146
168	14.00	0.77	0.236	(0.129)	0.090	0.146
169	14.08	0.90	0.277	(0.128)	0.105	0.172
170	14.17	0.90	0.277	(0.127)	0.105	0.172
171	14.25	0.90	0.277	(0.127)	0.105	0.172
172	14.33	0.87	0.267	(0.126)	0.101	0.165
173	14.42	0.87	0.267	(0.125)	0.101	0.165
174	14.50	0.87	0.267	(0.125)	0.101	0.165
175	14.58	0.87	0.267	(0.124)	0.101	0.165
176	14.67	0.87	0.267	(0.123)	0.101	0.165
177	14.75	0.87	0.267	(0.123)	0.101	0.165
178	14.83	0.83	0.256	(0.122)	0.097	0.159
179	14.92	0.83	0.256	(0.121)	0.097	0.159

180	15.00	0.83	0.256	(0.121)	0.097	0.159
181	15.08	0.80	0.246	(0.120)	0.094	0.153
182	15.17	0.80	0.246	(0.120)	0.094	0.153
183	15.25	0.80	0.246	(0.119)	0.094	0.153
184	15.33	0.77	0.236	(0.118)	0.090	0.146
185	15.42	0.77	0.236	(0.118)	0.090	0.146
186	15.50	0.77	0.236	(0.117)	0.090	0.146
187	15.58	0.63	0.195	(0.117)	0.074	0.121
188	15.67	0.63	0.195	(0.116)	0.074	0.121
189	15.75	0.63	0.195	(0.115)	0.074	0.121
190	15.83	0.63	0.195	(0.115)	0.074	0.121
191	15.92	0.63	0.195	(0.114)	0.074	0.121
192	16.00	0.63	0.195	(0.114)	0.074	0.121
193	16.08	0.13	0.041	(0.113)	0.016	0.025
194	16.17	0.13	0.041	(0.112)	0.016	0.025
195	16.25	0.13	0.041	(0.112)	0.016	0.025
196	16.33	0.13	0.041	(0.111)	0.016	0.025
197	16.42	0.13	0.041	(0.111)	0.016	0.025
198	16.50	0.13	0.041	(0.110)	0.016	0.025
199	16.58	0.10	0.031	(0.110)	0.012	0.019
200	16.67	0.10	0.031	(0.109)	0.012	0.019
201	16.75	0.10	0.031	(0.109)	0.012	0.019
202	16.83	0.10	0.031	(0.108)	0.012	0.019
203	16.92	0.10	0.031	(0.107)	0.012	0.019
204	17.00	0.10	0.031	(0.107)	0.012	0.019
205	17.08	0.17	0.051	(0.106)	0.019	0.032
206	17.17	0.17	0.051	(0.106)	0.019	0.032
207	17.25	0.17	0.051	(0.105)	0.019	0.032
208	17.33	0.17	0.051	(0.105)	0.019	0.032
209	17.42	0.17	0.051	(0.104)	0.019	0.032
210	17.50	0.17	0.051	(0.104)	0.019	0.032
211	17.58	0.17	0.051	(0.103)	0.019	0.032
212	17.67	0.17	0.051	(0.103)	0.019	0.032
213	17.75	0.17	0.051	(0.102)	0.019	0.032
214	17.83	0.13	0.041	(0.102)	0.016	0.025
215	17.92	0.13	0.041	(0.101)	0.016	0.025
216	18.00	0.13	0.041	(0.101)	0.016	0.025
217	18.08	0.13	0.041	(0.100)	0.016	0.025
218	18.17	0.13	0.041	(0.100)	0.016	0.025
219	18.25	0.13	0.041	(0.099)	0.016	0.025
220	18.33	0.13	0.041	(0.099)	0.016	0.025
221	18.42	0.13	0.041	(0.098)	0.016	0.025
222	18.50	0.13	0.041	(0.098)	0.016	0.025
223	18.58	0.10	0.031	(0.097)	0.012	0.019
224	18.67	0.10	0.031	(0.097)	0.012	0.019
225	18.75	0.10	0.031	(0.096)	0.012	0.019
226	18.83	0.07	0.021	(0.096)	0.008	0.013
227	18.92	0.07	0.021	(0.095)	0.008	0.013
228	19.00	0.07	0.021	(0.095)	0.008	0.013
229	19.08	0.10	0.031	(0.094)	0.012	0.019
230	19.17	0.10	0.031	(0.094)	0.012	0.019
231	19.25	0.10	0.031	(0.094)	0.012	0.019
232	19.33	0.13	0.041	(0.093)	0.016	0.025
233	19.42	0.13	0.041	(0.093)	0.016	0.025
234	19.50	0.13	0.041	(0.092)	0.016	0.025
235	19.58	0.10	0.031	(0.092)	0.012	0.019
236	19.67	0.10	0.031	(0.091)	0.012	0.019
237	19.75	0.10	0.031	(0.091)	0.012	0.019
238	19.83	0.07	0.021	(0.091)	0.008	0.013
239	19.92	0.07	0.021	(0.090)	0.008	0.013

Peak flow rate of this hydrograph = 0.872(CFS)

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24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

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 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0002	0.03	Q	|	|	|
0+10	0.0005	0.05	Q	|	|	|
0+15	0.0009	0.05	Q	|	|	|
0+20	0.0013	0.07	Q	|	|	|
0+25	0.0019	0.08	Q	|	|	|
0+30	0.0024	0.08	Q	|	|	|
0+35	0.0029	0.08	Q	|	|	|
0+40	0.0035	0.08	Q	|	|	|
0+45	0.0040	0.08	Q	|	|	|
0+50	0.0046	0.09	Q	|	|	|
0+55	0.0053	0.10	Q	|	|	|
1+ 0	0.0060	0.10	Q	|	|	|
1+ 5	0.0066	0.09	Q	|	|	|
1+10	0.0072	0.08	Q	|	|	|
1+15	0.0077	0.08	Q	|	|	|
1+20	0.0082	0.08	Q	|	|	|
1+25	0.0088	0.08	Q	|	|	|
1+30	0.0093	0.08	Q	|	|	|
1+35	0.0098	0.08	Q	|	|	|
1+40	0.0103	0.08	Q	|	|	|
1+45	0.0109	0.08	Q	|	|	|
1+50	0.0115	0.09	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+55	0.0122	0.10	Q	|	|	|
2+ 0	0.0129	0.10	Q	|	|	|
2+ 5	0.0136	0.10	QV	|	|	|
2+10	0.0143	0.10	QV	|	|	|
2+15	0.0150	0.10	QV	|	|	|
2+20	0.0157	0.10	QV	|	|	|
2+25	0.0164	0.10	QV	|	|	|
2+30	0.0172	0.10	QV	|	|	|
2+35	0.0180	0.12	QV	|	|	|
2+40	0.0188	0.13	QV	|	|	|
2+45	0.0197	0.13	QV	|	|	|
2+50	0.0206	0.13	QV	|	|	|
2+55	0.0215	0.13	QV	|	|	|
3+ 0	0.0224	0.13	QV	|	|	|
3+ 5	0.0232	0.13	QV	|	|	|
3+10	0.0241	0.13	QV	|	|	|
3+15	0.0250	0.13	QV	|	|	|
3+20	0.0259	0.13	QV	|	|	|
3+25	0.0268	0.13	Q V	|	|	|
3+30	0.0277	0.13	Q V	|	|	|
3+35	0.0285	0.13	Q V	|	|	|
3+40	0.0294	0.13	Q V	|	|	|
3+45	0.0303	0.13	Q V	|	|	|
3+50	0.0313	0.14	Q V	|	|	|
3+55	0.0324	0.15	Q V	|	|	|
4+ 0	0.0334	0.15	Q V	|	|	|
4+ 5	0.0345	0.15	Q V	|	|	|
4+10	0.0355	0.15	Q V	|	|	|
4+15	0.0366	0.15	Q V	|	|	|
4+20	0.0377	0.17	Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4+25	0.0390	0.18	Q	V	|	|	|
4+30	0.0402	0.18	Q	V	|	|	|
4+35	0.0415	0.18	Q	V	|	|	|
4+40	0.0427	0.18	Q	V	|	|	|
4+45	0.0439	0.18	Q	V	|	|	|
4+50	0.0453	0.19	Q	V	|	|	|
4+55	0.0467	0.20	Q	V	|	|	|
5+ 0	0.0481	0.21	Q	V	|	|	|
5+ 5	0.0493	0.18	Q	V	|	|	|
5+10	0.0504	0.16	Q	V	|	|	|
5+15	0.0514	0.15	Q	V	|	|	|
5+20	0.0526	0.17	Q	V	|	|	|
5+25	0.0538	0.18	Q	V	|	|	|
5+30	0.0551	0.18	Q	V	|	|	|
5+35	0.0564	0.19	Q	V	|	|	|
5+40	0.0578	0.20	Q	V	|	|	|
5+45	0.0592	0.21	Q	V	|	|	|
5+50	0.0606	0.21	Q	V	|	|	|
5+55	0.0620	0.21	Q	V	|	|	|
6+ 0	0.0635	0.21	Q	V	|	|	|
6+ 5	0.0650	0.22	Q	V	|	|	|
6+10	0.0665	0.23	Q	V	|	|	|
6+15	0.0681	0.23	Q	V	|	|	|
6+20	0.0697	0.23	Q	V	|	|	|
6+25	0.0713	0.23	Q	V	|	|	|
6+30	0.0729	0.23	Q	V			
6+35	0.0746	0.24	Q	V			
6+40	0.0764	0.26	Q	V			
6+45	0.0781	0.26	Q	V			
6+50	0.0799	0.26	Q	V			

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6+55	0.0817	0.26	Q	v			
7+ 0	0.0834	0.26	Q	v			
7+ 5	0.0852	0.26	Q	v			
7+10	0.0870	0.26	Q	v			
7+15	0.0887	0.26	Q	v			
7+20	0.0906	0.27	|Q	v	|	|	|
7+25	0.0925	0.28	|Q	v	|	|	|
7+30	0.0945	0.28	|Q	v	|	|	|
7+35	0.0965	0.30	|Q	v	|	|	|
7+40	0.0986	0.31	|Q	v	|	|	|
7+45	0.1007	0.31	|Q	v	|	|	|
7+50	0.1030	0.32	|Q	v	|	|	|
7+55	0.1053	0.33	|Q	v	|	|	|
8+ 0	0.1076	0.33	|Q	v	|	|	|
8+ 5	0.1100	0.36	|Q	v	|	|	|
8+10	0.1127	0.38	|Q	v	|	|	|
8+15	0.1153	0.38	|Q	v	|	|	|
8+20	0.1180	0.38	|Q	v	|	|	|
8+25	0.1206	0.38	|Q	v	|	|	|
8+30	0.1233	0.38	|Q	v	|	|	|
8+35	0.1260	0.40	|Q	v	|	|	|
8+40	0.1288	0.41	|Q	v	|	|	|
8+45	0.1317	0.41	|Q	v	|	|	|
8+50	0.1346	0.42	|Q	v	|	|	|
8+55	0.1376	0.44	|Q	v	|	|	|
9+ 0	0.1406	0.44	Q	v			
9+ 5	0.1438	0.46	Q	v			
9+10	0.1471	0.49	Q	v			
9+15	0.1505	0.49	Q	v			
9+20	0.1540	0.50	Q	v			

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9+25	0.1575	0.51	Q	V		
9+30	0.1610	0.51	Q	V		
9+35	0.1646	0.53	Q	V		
9+40	0.1684	0.54	Q	V		
9+45	0.1721	0.54	Q	V		
9+50	0.1759	0.55	| Q	| V	|	|
9+55	0.1798	0.56	| Q	| V	|	|
10+ 0	0.1836	0.56	| Q	| V	|	|
10+ 5	0.1869	0.47	| Q	| V	|	|
10+10	0.1895	0.39	| Q	| V	|	|
10+15	0.1922	0.38	| Q	| V	|	|
10+20	0.1948	0.38	| Q	| V	|	|
10+25	0.1975	0.38	| Q	| V	|	|
10+30	0.2001	0.38	| Q	| V	|	|
10+35	0.2033	0.45	| Q	| V	|	|
10+40	0.2068	0.51	| Q	| V	|	|
10+45	0.2103	0.51	| Q	| V	|	|
10+50	0.2138	0.51	| Q	| V	|	|
10+55	0.2174	0.51	| Q	| V	|	|
11+ 0	0.2209	0.51	| Q	| V	|	|
11+ 5	0.2243	0.50	| Q	| V	|	|
11+10	0.2277	0.49	| Q	| V	|	|
11+15	0.2311	0.49	| Q	| V	|	|
11+20	0.2344	0.49	| Q	| V	|	|
11+25	0.2378	0.49	| Q	| V	|	|
11+30	0.2411	0.49	Q	V		
11+35	0.2443	0.46	Q	V		
11+40	0.2473	0.44	Q	V		
11+45	0.2503	0.44	Q	V		
11+50	0.2534	0.45	Q	V		

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11+55	0.2566	0.46	Q		v	
12+ 0	0.2598	0.46	Q		v	
12+ 5	0.2636	0.56	Q		v	
12+10	0.2680	0.64	Q		v	
12+15	0.2724	0.64	Q		v	
12+20	0.2769	0.66	| Q	|	v	|
12+25	0.2815	0.67	| Q	|	|v	|
12+30	0.2861	0.67	| Q	|	|v	|
12+35	0.2909	0.70	| Q	|	|v	|
12+40	0.2958	0.72	| Q	|	| v	|
12+45	0.3008	0.72	| Q	|	| v	|
12+50	0.3058	0.73	| Q	|	| v	|
12+55	0.3110	0.74	| Q	|	| v	|
13+ 0	0.3161	0.74	| Q	|	| v	|
13+ 5	0.3217	0.81	| Q	|	| v	|
13+10	0.3277	0.87	| Q	|	| v	|
13+15	0.3337	0.87	| Q	|	| v	|
13+20	0.3397	0.87	| Q	|	| v	|
13+25	0.3457	0.87	| Q	|	| v	|
13+30	0.3517	0.87	| Q	|	| v	|
13+35	0.3566	0.72	| Q	|	| v	|
13+40	0.3608	0.60	| Q	|	| v	|
13+45	0.3648	0.59	| Q	|	| v	|
13+50	0.3689	0.59	| Q	|	| v	|
13+55	0.3730	0.59	| Q	|	| v	|
14+ 0	0.3770	0.59	Q		v	
14+ 5	0.3815	0.65	Q		v	
14+10	0.3862	0.69	Q		v	
14+15	0.3910	0.69	Q		v	
14+20	0.3957	0.68	Q		v	

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14+25	0.4003	0.67	Q			V
14+30	0.4049	0.67	Q			V
14+35	0.4095	0.67	Q			V
14+40	0.4140	0.67	Q			V
14+45	0.4186	0.67	Q			V
14+50	0.4231	0.65	| Q	|	|	|V
14+55	0.4276	0.64	| Q	|	|	| V
15+ 0	0.4320	0.64	| Q	|	|	| V
15+ 5	0.4363	0.63	| Q	|	|	| V
15+10	0.4405	0.62	| Q	|	|	| V
15+15	0.4448	0.62	| Q	|	|	| V
15+20	0.4489	0.60	| Q	|	|	| V
15+25	0.4530	0.59	| Q	|	|	| V
15+30	0.4571	0.59	| Q	|	|	| V
15+35	0.4607	0.53	| Q	|	|	| V
15+40	0.4641	0.49	|Q	|	|	| V
15+45	0.4675	0.49	|Q	|	|	| V
15+50	0.4708	0.49	|Q	|	|	| V
15+55	0.4742	0.49	|Q	|	|	| V
16+ 0	0.4775	0.49	|Q	|	|	| V
16+ 5	0.4795	0.28	|Q	|	|	| V
16+10	0.4802	0.11	Q	|	|	| V
16+15	0.4809	0.10	Q	|	|	| V
16+20	0.4816	0.10	Q	|	|	| V
16+25	0.4824	0.10	Q	|	|	| V
16+30	0.4831	0.10	Q			V
16+35	0.4837	0.09	Q			V
16+40	0.4842	0.08	Q			V
16+45	0.4847	0.08	Q			V
16+50	0.4853	0.08	Q			V

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16+55	0.4858	0.08	Q				V
17+ 0	0.4863	0.08	Q				V
17+ 5	0.4870	0.10	Q				V
17+10	0.4879	0.13	Q				V
17+15	0.4888	0.13	Q				V
17+20	0.4897	0.13	Q	|	|	|	V
17+25	0.4906	0.13	Q	|	|	|	V
17+30	0.4915	0.13	Q	|	|	|	V
17+35	0.4923	0.13	Q	|	|	|	V
17+40	0.4932	0.13	Q	|	|	|	V
17+45	0.4941	0.13	Q	|	|	|	V
17+50	0.4949	0.11	Q	|	|	|	V
17+55	0.4956	0.10	Q	|	|	|	V
18+ 0	0.4963	0.10	Q	|	|	|	V
18+ 5	0.4970	0.10	Q	|	|	|	V
18+10	0.4977	0.10	Q	|	|	|	V
18+15	0.4984	0.10	Q	|	|	|	V
18+20	0.4991	0.10	Q	|	|	|	V
18+25	0.4998	0.10	Q	|	|	|	V
18+30	0.5006	0.10	Q	|	|	|	V
18+35	0.5012	0.09	Q	|	|	|	V
18+40	0.5017	0.08	Q	|	|	|	V
18+45	0.5022	0.08	Q	|	|	|	V
18+50	0.5027	0.06	Q	|	|	|	V
18+55	0.5030	0.05	Q	|	|	|	V
19+ 0	0.5034	0.05	Q	|	|	|	V
19+ 5	0.5038	0.07	Q	|	|	|	V
19+10	0.5043	0.08	Q	|	|	|	V
19+15	0.5049	0.08	Q	|	|	|	V
19+20	0.5055	0.09	Q	|	|	|	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	19+25	0.5062	0.10	Q				V
	19+30	0.5069	0.10	Q				V
	19+35	0.5075	0.09	Q				V
	19+40	0.5081	0.08	Q				V
	19+45	0.5086	0.08	Q				V
	19+50	0.5090	0.06	Q				V
	19+55	0.5094	0.05	Q				V
	20+ 0	0.5097	0.05	Q				V
	20+ 5	0.5102	0.07	Q				V
	20+10	0.5107	0.08	Q				V
	20+15	0.5112	0.08	Q				V
	20+20	0.5118	0.08	Q				V
	20+25	0.5123	0.08	Q				V
	20+30	0.5128	0.08	Q				V
	20+35	0.5134	0.08	Q				V
	20+40	0.5139	0.08	Q				V
	20+45	0.5144	0.08	Q				V
	20+50	0.5149	0.06	Q				V
	20+55	0.5152	0.05	Q				V
	21+ 0	0.5156	0.05	Q				V
	21+ 5	0.5160	0.07	Q				V
	21+10	0.5165	0.08	Q				V
	21+15	0.5171	0.08	Q				V
V|	21+20	0.5175	0.06	Q				V
V|	21+25	0.5179	0.05	Q				V
V|	21+30	0.5182	0.05	Q				V
V|	21+35	0.5187	0.07	Q				V
V|	21+40	0.5192	0.08	Q				V
V|	21+45	0.5197	0.08	Q				V
V|	21+50	0.5202	0.06	Q				V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	21+55	0.5205	0.05	Q	|	|	|
V|	22+ 0	0.5209	0.05	Q	|	|	|
V|	22+ 5	0.5213	0.07	Q	|	|	|
V|	22+10	0.5218	0.08	Q	|	|	|
V|	22+15	0.5224	0.08	Q	|	|	|
V|	22+20	0.5228	0.06	Q	|	|	|
V|	22+25	0.5232	0.05	Q	|	|	|
V|	22+30	0.5235	0.05	Q	|	|	|
V|	22+35	0.5239	0.05	Q	|	|	|
V|	22+40	0.5242	0.05	Q	|	|	|
V|	22+45	0.5246	0.05	Q	|	|	|
V|	22+50	0.5249	0.05	Q	|	|	|
V|	22+55	0.5253	0.05	Q	|	|	|
V|	23+ 0	0.5256	0.05	Q	|	|	|
V|	23+ 5	0.5260	0.05	Q	|	|	|
V|	23+10	0.5263	0.05	Q	|	|	|
V|	23+15	0.5267	0.05	Q	|	|	|
V|	23+20	0.5270	0.05	Q	|	|	|
V|	23+25	0.5274	0.05	Q	|	|	|
V|	23+30	0.5278	0.05	Q	|	|	|
V|	23+35	0.5281	0.05	Q	|	|	|
V|	23+40	0.5285	0.05	Q	|	|	|
V|	23+45	0.5288	0.05	Q	|	|	|
V|	23+50	0.5292	0.05	Q	|	|	|
V|	23+55	0.5295	0.05	Q	|	|	|
V|	24+ 0	0.5299	0.05	Q	|	|	|
V|	24+ 5	0.5300	0.02	Q	|	|	|
V|	24+10	0.5300	0.00	Q	|	|	|
V|					|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post2410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.07	0.024	(0.274)	0.009	0.015
2	0.17	0.07	0.024	(0.273)	0.009	0.015
3	0.25	0.07	0.024	(0.272)	0.009	0.015
4	0.33	0.10	0.037	(0.271)	0.014	0.023
5	0.42	0.10	0.037	(0.270)	0.014	0.023
6	0.50	0.10	0.037	(0.269)	0.014	0.023
7	0.58	0.10	0.037	(0.268)	0.014	0.023
8	0.67	0.10	0.037	(0.267)	0.014	0.023
9	0.75	0.10	0.037	(0.266)	0.014	0.023
10	0.83	0.13	0.049	(0.265)	0.019	0.030
11	0.92	0.13	0.049	(0.264)	0.019	0.030
12	1.00	0.13	0.049	(0.263)	0.019	0.030
13	1.08	0.10	0.037	(0.262)	0.014	0.023
14	1.17	0.10	0.037	(0.261)	0.014	0.023
15	1.25	0.10	0.037	(0.260)	0.014	0.023
16	1.33	0.10	0.037	(0.259)	0.014	0.023
17	1.42	0.10	0.037	(0.258)	0.014	0.023
18	1.50	0.10	0.037	(0.257)	0.014	0.023
19	1.58	0.10	0.037	(0.255)	0.014	0.023
20	1.67	0.10	0.037	(0.254)	0.014	0.023
21	1.75	0.10	0.037	(0.253)	0.014	0.023
22	1.83	0.13	0.049	(0.252)	0.019	0.030
23	1.92	0.13	0.049	(0.251)	0.019	0.030
24	2.00	0.13	0.049	(0.250)	0.019	0.030
25	2.08	0.13	0.049	(0.249)	0.019	0.030
26	2.17	0.13	0.049	(0.248)	0.019	0.030
27	2.25	0.13	0.049	(0.247)	0.019	0.030
28	2.33	0.13	0.049	(0.246)	0.019	0.030
29	2.42	0.13	0.049	(0.245)	0.019	0.030
30	2.50	0.13	0.049	(0.244)	0.019	0.030
31	2.58	0.17	0.061	(0.243)	0.023	0.038
32	2.67	0.17	0.061	(0.242)	0.023	0.038
33	2.75	0.17	0.061	(0.241)	0.023	0.038
34	2.83	0.17	0.061	(0.240)	0.023	0.038
35	2.92	0.17	0.061	(0.239)	0.023	0.038
36	3.00	0.17	0.061	(0.238)	0.023	0.038
37	3.08	0.17	0.061	(0.237)	0.023	0.038
38	3.17	0.17	0.061	(0.236)	0.023	0.038
39	3.25	0.17	0.061	(0.235)	0.023	0.038
40	3.33	0.17	0.061	(0.234)	0.023	0.038
41	3.42	0.17	0.061	(0.233)	0.023	0.038
42	3.50	0.17	0.061	(0.232)	0.023	0.038
43	3.58	0.17	0.061	(0.232)	0.023	0.038
44	3.67	0.17	0.061	(0.231)	0.023	0.038
45	3.75	0.17	0.061	(0.230)	0.023	0.038
46	3.83	0.20	0.073	(0.229)	0.028	0.045
47	3.92	0.20	0.073	(0.228)	0.028	0.045
48	4.00	0.20	0.073	(0.227)	0.028	0.045
49	4.08	0.20	0.073	(0.226)	0.028	0.045
50	4.17	0.20	0.073	(0.225)	0.028	0.045
51	4.25	0.20	0.073	(0.224)	0.028	0.045
52	4.33	0.23	0.085	(0.223)	0.032	0.053
53	4.42	0.23	0.085	(0.222)	0.032	0.053
54	4.50	0.23	0.085	(0.221)	0.032	0.053
55	4.58	0.23	0.085	(0.220)	0.032	0.053
56	4.67	0.23	0.085	(0.219)	0.032	0.053
57	4.75	0.23	0.085	(0.218)	0.032	0.053
58	4.83	0.27	0.097	(0.217)	0.037	0.060
59	4.92	0.27	0.097	(0.216)	0.037	0.060

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

60	5.00	0.27	0.097	(0.215)	0.037	0.060
61	5.08	0.20	0.073	(0.214)	0.028	0.045
62	5.17	0.20	0.073	(0.213)	0.028	0.045
63	5.25	0.20	0.073	(0.212)	0.028	0.045
64	5.33	0.23	0.085	(0.212)	0.032	0.053
65	5.42	0.23	0.085	(0.211)	0.032	0.053
66	5.50	0.23	0.085	(0.210)	0.032	0.053
67	5.58	0.27	0.097	(0.209)	0.037	0.060
68	5.67	0.27	0.097	(0.208)	0.037	0.060
69	5.75	0.27	0.097	(0.207)	0.037	0.060
70	5.83	0.27	0.097	(0.206)	0.037	0.060
71	5.92	0.27	0.097	(0.205)	0.037	0.060
72	6.00	0.27	0.097	(0.204)	0.037	0.060
73	6.08	0.30	0.110	(0.203)	0.042	0.068
74	6.17	0.30	0.110	(0.202)	0.042	0.068
75	6.25	0.30	0.110	(0.202)	0.042	0.068
76	6.33	0.30	0.110	(0.201)	0.042	0.068
77	6.42	0.30	0.110	(0.200)	0.042	0.068
78	6.50	0.30	0.110	(0.199)	0.042	0.068
79	6.58	0.33	0.122	(0.198)	0.046	0.076
80	6.67	0.33	0.122	(0.197)	0.046	0.076
81	6.75	0.33	0.122	(0.196)	0.046	0.076
82	6.83	0.33	0.122	(0.195)	0.046	0.076
83	6.92	0.33	0.122	(0.194)	0.046	0.076
84	7.00	0.33	0.122	(0.193)	0.046	0.076
85	7.08	0.33	0.122	(0.193)	0.046	0.076
86	7.17	0.33	0.122	(0.192)	0.046	0.076
87	7.25	0.33	0.122	(0.191)	0.046	0.076
88	7.33	0.37	0.134	(0.190)	0.051	0.083
89	7.42	0.37	0.134	(0.189)	0.051	0.083
90	7.50	0.37	0.134	(0.188)	0.051	0.083
91	7.58	0.40	0.146	(0.187)	0.056	0.091
92	7.67	0.40	0.146	(0.187)	0.056	0.091
93	7.75	0.40	0.146	(0.186)	0.056	0.091
94	7.83	0.43	0.158	(0.185)	0.060	0.098
95	7.92	0.43	0.158	(0.184)	0.060	0.098
96	8.00	0.43	0.158	(0.183)	0.060	0.098
97	8.08	0.50	0.183	(0.182)	0.069	0.113
98	8.17	0.50	0.183	(0.181)	0.069	0.113
99	8.25	0.50	0.183	(0.181)	0.069	0.113
100	8.33	0.50	0.183	(0.180)	0.069	0.113
101	8.42	0.50	0.183	(0.179)	0.069	0.113
102	8.50	0.50	0.183	(0.178)	0.069	0.113
103	8.58	0.53	0.195	(0.177)	0.074	0.121
104	8.67	0.53	0.195	(0.176)	0.074	0.121
105	8.75	0.53	0.195	(0.176)	0.074	0.121
106	8.83	0.57	0.207	(0.175)	0.079	0.128
107	8.92	0.57	0.207	(0.174)	0.079	0.128
108	9.00	0.57	0.207	(0.173)	0.079	0.128
109	9.08	0.63	0.231	(0.172)	0.088	0.143
110	9.17	0.63	0.231	(0.171)	0.088	0.143
111	9.25	0.63	0.231	(0.171)	0.088	0.143
112	9.33	0.67	0.244	(0.170)	0.093	0.151
113	9.42	0.67	0.244	(0.169)	0.093	0.151
114	9.50	0.67	0.244	(0.168)	0.093	0.151
115	9.58	0.70	0.256	(0.167)	0.097	0.159
116	9.67	0.70	0.256	(0.167)	0.097	0.159
117	9.75	0.70	0.256	(0.166)	0.097	0.159
118	9.83	0.73	0.268	(0.165)	0.102	0.166
119	9.92	0.73	0.268	(0.164)	0.102	0.166

120	10.00	0.73	0.268	(0.163)	0.102	0.166
121	10.08	0.50	0.183	(0.163)	0.069	0.113
122	10.17	0.50	0.183	(0.162)	0.069	0.113
123	10.25	0.50	0.183	(0.161)	0.069	0.113
124	10.33	0.50	0.183	(0.160)	0.069	0.113
125	10.42	0.50	0.183	(0.159)	0.069	0.113
126	10.50	0.50	0.183	(0.159)	0.069	0.113
127	10.58	0.67	0.244	(0.158)	0.093	0.151
128	10.67	0.67	0.244	(0.157)	0.093	0.151
129	10.75	0.67	0.244	(0.156)	0.093	0.151
130	10.83	0.67	0.244	(0.156)	0.093	0.151
131	10.92	0.67	0.244	(0.155)	0.093	0.151
132	11.00	0.67	0.244	(0.154)	0.093	0.151
133	11.08	0.63	0.231	(0.153)	0.088	0.143
134	11.17	0.63	0.231	(0.153)	0.088	0.143
135	11.25	0.63	0.231	(0.152)	0.088	0.143
136	11.33	0.63	0.231	(0.151)	0.088	0.143
137	11.42	0.63	0.231	(0.150)	0.088	0.143
138	11.50	0.63	0.231	(0.150)	0.088	0.143
139	11.58	0.57	0.207	(0.149)	0.079	0.128
140	11.67	0.57	0.207	(0.148)	0.079	0.128
141	11.75	0.57	0.207	(0.147)	0.079	0.128
142	11.83	0.60	0.219	(0.147)	0.083	0.136
143	11.92	0.60	0.219	(0.146)	0.083	0.136
144	12.00	0.60	0.219	(0.145)	0.083	0.136
145	12.08	0.83	0.304	(0.144)	0.116	0.189
146	12.17	0.83	0.304	(0.144)	0.116	0.189
147	12.25	0.83	0.304	(0.143)	0.116	0.189
148	12.33	0.87	0.317	(0.142)	0.120	0.196
149	12.42	0.87	0.317	(0.142)	0.120	0.196
150	12.50	0.87	0.317	(0.141)	0.120	0.196
151	12.58	0.93	0.341	(0.140)	0.130	0.211
152	12.67	0.93	0.341	(0.139)	0.130	0.211
153	12.75	0.93	0.341	(0.139)	0.130	0.211
154	12.83	0.97	0.353	(0.138)	0.134	0.219
155	12.92	0.97	0.353	(0.137)	0.134	0.219
156	13.00	0.97	0.353	(0.137)	0.134	0.219
157	13.08	1.13	0.414	0.136 (0.157)		0.278
158	13.17	1.13	0.414	0.135 (0.157)		0.279
159	13.25	1.13	0.414	0.135 (0.157)		0.280
160	13.33	1.13	0.414	0.134 (0.157)		0.280
161	13.42	1.13	0.414	0.133 (0.157)		0.281
162	13.50	1.13	0.414	0.133 (0.157)		0.282
163	13.58	0.77	0.280	(0.132)	0.106	0.174
164	13.67	0.77	0.280	(0.131)	0.106	0.174
165	13.75	0.77	0.280	(0.130)	0.106	0.174
166	13.83	0.77	0.280	(0.130)	0.106	0.174
167	13.92	0.77	0.280	(0.129)	0.106	0.174
168	14.00	0.77	0.280	(0.129)	0.106	0.174
169	14.08	0.90	0.329	(0.128)	0.125	0.204
170	14.17	0.90	0.329	(0.127)	0.125	0.204
171	14.25	0.90	0.329	(0.127)	0.125	0.204
172	14.33	0.87	0.317	(0.126)	0.120	0.196
173	14.42	0.87	0.317	(0.125)	0.120	0.196
174	14.50	0.87	0.317	(0.125)	0.120	0.196
175	14.58	0.87	0.317	(0.124)	0.120	0.196
176	14.67	0.87	0.317	(0.123)	0.120	0.196
177	14.75	0.87	0.317	(0.123)	0.120	0.196
178	14.83	0.83	0.304	(0.122)	0.116	0.189
179	14.92	0.83	0.304	(0.121)	0.116	0.189

180	15.00	0.83	0.304	(0.121)	0.116	0.189
181	15.08	0.80	0.292	(0.120)	0.111	0.181
182	15.17	0.80	0.292	(0.120)	0.111	0.181
183	15.25	0.80	0.292	(0.119)	0.111	0.181
184	15.33	0.77	0.280	(0.118)	0.106	0.174
185	15.42	0.77	0.280	(0.118)	0.106	0.174
186	15.50	0.77	0.280	(0.117)	0.106	0.174
187	15.58	0.63	0.231	(0.117)	0.088	0.143
188	15.67	0.63	0.231	(0.116)	0.088	0.143
189	15.75	0.63	0.231	(0.115)	0.088	0.143
190	15.83	0.63	0.231	(0.115)	0.088	0.143
191	15.92	0.63	0.231	(0.114)	0.088	0.143
192	16.00	0.63	0.231	(0.114)	0.088	0.143
193	16.08	0.13	0.049	(0.113)	0.019	0.030
194	16.17	0.13	0.049	(0.112)	0.019	0.030
195	16.25	0.13	0.049	(0.112)	0.019	0.030
196	16.33	0.13	0.049	(0.111)	0.019	0.030
197	16.42	0.13	0.049	(0.111)	0.019	0.030
198	16.50	0.13	0.049	(0.110)	0.019	0.030
199	16.58	0.10	0.037	(0.110)	0.014	0.023
200	16.67	0.10	0.037	(0.109)	0.014	0.023
201	16.75	0.10	0.037	(0.109)	0.014	0.023
202	16.83	0.10	0.037	(0.108)	0.014	0.023
203	16.92	0.10	0.037	(0.107)	0.014	0.023
204	17.00	0.10	0.037	(0.107)	0.014	0.023
205	17.08	0.17	0.061	(0.106)	0.023	0.038
206	17.17	0.17	0.061	(0.106)	0.023	0.038
207	17.25	0.17	0.061	(0.105)	0.023	0.038
208	17.33	0.17	0.061	(0.105)	0.023	0.038
209	17.42	0.17	0.061	(0.104)	0.023	0.038
210	17.50	0.17	0.061	(0.104)	0.023	0.038
211	17.58	0.17	0.061	(0.103)	0.023	0.038
212	17.67	0.17	0.061	(0.103)	0.023	0.038
213	17.75	0.17	0.061	(0.102)	0.023	0.038
214	17.83	0.13	0.049	(0.102)	0.019	0.030
215	17.92	0.13	0.049	(0.101)	0.019	0.030
216	18.00	0.13	0.049	(0.101)	0.019	0.030
217	18.08	0.13	0.049	(0.100)	0.019	0.030
218	18.17	0.13	0.049	(0.100)	0.019	0.030
219	18.25	0.13	0.049	(0.099)	0.019	0.030
220	18.33	0.13	0.049	(0.099)	0.019	0.030
221	18.42	0.13	0.049	(0.098)	0.019	0.030
222	18.50	0.13	0.049	(0.098)	0.019	0.030
223	18.58	0.10	0.037	(0.097)	0.014	0.023
224	18.67	0.10	0.037	(0.097)	0.014	0.023
225	18.75	0.10	0.037	(0.096)	0.014	0.023
226	18.83	0.07	0.024	(0.096)	0.009	0.015
227	18.92	0.07	0.024	(0.095)	0.009	0.015
228	19.00	0.07	0.024	(0.095)	0.009	0.015
229	19.08	0.10	0.037	(0.094)	0.014	0.023
230	19.17	0.10	0.037	(0.094)	0.014	0.023
231	19.25	0.10	0.037	(0.094)	0.014	0.023
232	19.33	0.13	0.049	(0.093)	0.019	0.030
233	19.42	0.13	0.049	(0.093)	0.019	0.030
234	19.50	0.13	0.049	(0.092)	0.019	0.030
235	19.58	0.10	0.037	(0.092)	0.014	0.023
236	19.67	0.10	0.037	(0.091)	0.014	0.023
237	19.75	0.10	0.037	(0.091)	0.014	0.023
238	19.83	0.07	0.024	(0.091)	0.009	0.015
239	19.92	0.07	0.024	(0.090)	0.009	0.015

240	20.00	0.07	0.024	(0.090)	0.009	0.015
241	20.08	0.10	0.037	(0.089)	0.014	0.023
242	20.17	0.10	0.037	(0.089)	0.014	0.023
243	20.25	0.10	0.037	(0.089)	0.014	0.023
244	20.33	0.10	0.037	(0.088)	0.014	0.023
245	20.42	0.10	0.037	(0.088)	0.014	0.023
246	20.50	0.10	0.037	(0.088)	0.014	0.023
247	20.58	0.10	0.037	(0.087)	0.014	0.023
248	20.67	0.10	0.037	(0.087)	0.014	0.023
249	20.75	0.10	0.037	(0.086)	0.014	0.023
250	20.83	0.07	0.024	(0.086)	0.009	0.015
251	20.92	0.07	0.024	(0.086)	0.009	0.015
252	21.00	0.07	0.024	(0.085)	0.009	0.015
253	21.08	0.10	0.037	(0.085)	0.014	0.023
254	21.17	0.10	0.037	(0.085)	0.014	0.023
255	21.25	0.10	0.037	(0.084)	0.014	0.023
256	21.33	0.07	0.024	(0.084)	0.009	0.015
257	21.42	0.07	0.024	(0.084)	0.009	0.015
258	21.50	0.07	0.024	(0.083)	0.009	0.015
259	21.58	0.10	0.037	(0.083)	0.014	0.023
260	21.67	0.10	0.037	(0.083)	0.014	0.023
261	21.75	0.10	0.037	(0.083)	0.014	0.023
262	21.83	0.07	0.024	(0.082)	0.009	0.015
263	21.92	0.07	0.024	(0.082)	0.009	0.015
264	22.00	0.07	0.024	(0.082)	0.009	0.015
265	22.08	0.10	0.037	(0.081)	0.014	0.023
266	22.17	0.10	0.037	(0.081)	0.014	0.023
267	22.25	0.10	0.037	(0.081)	0.014	0.023
268	22.33	0.07	0.024	(0.081)	0.009	0.015
269	22.42	0.07	0.024	(0.080)	0.009	0.015
270	22.50	0.07	0.024	(0.080)	0.009	0.015
271	22.58	0.07	0.024	(0.080)	0.009	0.015
272	22.67	0.07	0.024	(0.080)	0.009	0.015
273	22.75	0.07	0.024	(0.079)	0.009	0.015
274	22.83	0.07	0.024	(0.079)	0.009	0.015
275	22.92	0.07	0.024	(0.079)	0.009	0.015
276	23.00	0.07	0.024	(0.079)	0.009	0.015
277	23.08	0.07	0.024	(0.079)	0.009	0.015
278	23.17	0.07	0.024	(0.079)	0.009	0.015
279	23.25	0.07	0.024	(0.078)	0.009	0.015
280	23.33	0.07	0.024	(0.078)	0.009	0.015
281	23.42	0.07	0.024	(0.078)	0.009	0.015
282	23.50	0.07	0.024	(0.078)	0.009	0.015
283	23.58	0.07	0.024	(0.078)	0.009	0.015
284	23.67	0.07	0.024	(0.078)	0.009	0.015
285	23.75	0.07	0.024	(0.078)	0.009	0.015
286	23.83	0.07	0.024	(0.077)	0.009	0.015
287	23.92	0.07	0.024	(0.077)	0.009	0.015
288	24.00	0.07	0.024	(0.077)	0.009	0.015

(Loss Rate Not Used)

Sum = 100.0 Sum = 22.8

Flood volume = Effective rainfall 1.90(In)
times area 4.0(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
Total soil loss = 1.15(In)
Total soil loss = 0.382(Ac.Ft)
Total rainfall = 3.04(In)
Flood volume = 27579.4 Cubic Feet
Total soil loss = 16632.5 Cubic Feet

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Peak flow rate of this hydrograph = 1.134(CFS)

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24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

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 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0002		0.03	Q	|	|	|
0+10	0.0006		0.06	Q	|	|	|
0+15	0.0011		0.06	Q	|	|	|
0+20	0.0016		0.08	Q	|	|	|
0+25	0.0022		0.09	Q	|	|	|
0+30	0.0028		0.09	Q	|	|	|
0+35	0.0035		0.09	Q	|	|	|
0+40	0.0041		0.09	Q	|	|	|
0+45	0.0047		0.09	Q	|	|	|
0+50	0.0055		0.11	Q	|	|	|
0+55	0.0063		0.12	Q	|	|	|
1+ 0	0.0071		0.12	Q	|	|	|
1+ 5	0.0079		0.11	Q	|	|	|
1+10	0.0085		0.09	Q	|	|	|
1+15	0.0091		0.09	Q	|	|	|
1+20	0.0098		0.09	Q	|	|	|
1+25	0.0104		0.09	Q	|	|	|
1+30	0.0110		0.09	Q	|	|	|
1+35	0.0117		0.09	Q	|	|	|
1+40	0.0123		0.09	Q	|	|	|
1+45	0.0129		0.09	Q	|	|	|
1+50	0.0137		0.11	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+55	0.0145	0.12	Q	|	|	|
2+ 0	0.0153	0.12	Q	|	|	|
2+ 5	0.0162	0.12	QV	|	|	|
2+10	0.0170	0.12	QV	|	|	|
2+15	0.0178	0.12	QV	|	|	|
2+20	0.0187	0.12	QV	|	|	|
2+25	0.0195	0.12	QV	|	|	|
2+30	0.0204	0.12	QV	|	|	|
2+35	0.0213	0.14	QV	|	|	|
2+40	0.0224	0.15	QV	|	|	|
2+45	0.0234	0.15	QV	|	|	|
2+50	0.0245	0.15	QV	|	|	|
2+55	0.0255	0.15	QV	|	|	|
3+ 0	0.0266	0.15	QV	|	|	|
3+ 5	0.0276	0.15	QV	|	|	|
3+10	0.0287	0.15	QV	|	|	|
3+15	0.0297	0.15	QV	|	|	|
3+20	0.0307	0.15	QV	|	|	|
3+25	0.0318	0.15	Q V	|	|	|
3+30	0.0328	0.15	Q V	|	|	|
3+35	0.0339	0.15	Q V	|	|	|
3+40	0.0349	0.15	Q V	|	|	|
3+45	0.0360	0.15	Q V	|	|	|
3+50	0.0372	0.17	Q V	|	|	|
3+55	0.0384	0.18	Q V	|	|	|
4+ 0	0.0397	0.18	Q V	|	|	|
4+ 5	0.0409	0.18	Q V	|	|	|
4+10	0.0422	0.18	Q V	|	|	|
4+15	0.0434	0.18	Q V	|	|	|
4+20	0.0448	0.20	Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4+25	0.0463	0.21	Q	V	|	|	|
4+30	0.0477	0.21	Q	V	|	|	|
4+35	0.0492	0.21	Q	V	|	|	|
4+40	0.0507	0.21	Q	V	|	|	|
4+45	0.0522	0.21	Q	V	|	|	|
4+50	0.0537	0.23	Q	V	|	|	|
4+55	0.0554	0.24	Q	V	|	|	|
5+ 0	0.0571	0.24	Q	V	|	|	|
5+ 5	0.0585	0.21	Q	V	|	|	|
5+10	0.0598	0.18	Q	V	|	|	|
5+15	0.0611	0.18	Q	V	|	|	|
5+20	0.0624	0.20	Q	V	|	|	|
5+25	0.0639	0.21	Q	V	|	|	|
5+30	0.0654	0.21	Q	V	|	|	|
5+35	0.0669	0.23	Q	V	|	|	|
5+40	0.0686	0.24	Q	V	|	|	|
5+45	0.0703	0.24	Q	V	|	|	|
5+50	0.0720	0.24	Q	V	|	|	|
5+55	0.0737	0.24	Q	V	|	|	|
6+ 0	0.0753	0.24	Q	V	|	|	|
6+ 5	0.0771	0.26	|Q	V	|	|	|
6+10	0.0790	0.27	|Q	V	|	|	|
6+15	0.0809	0.27	|Q	V	|	|	|
6+20	0.0828	0.27	|Q	V	|	|	|
6+25	0.0847	0.27	|Q	V	|	|	|
6+30	0.0866	0.27	|Q	V	|	|	|
6+35	0.0886	0.29	|Q	V	|	|	|
6+40	0.0907	0.30	|Q	V	|	|	|
6+45	0.0927	0.30	|Q	V	|	|	|
6+50	0.0948	0.30	|Q	V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

6+55	0.0969	0.30	|Q	v	|	|	|
7+ 0	0.0990	0.30	|Q	v	|	|	|
7+ 5	0.1011	0.30	|Q	v	|	|	|
7+10	0.1032	0.30	|Q	v	|	|	|
7+15	0.1053	0.30	|Q	v	|	|	|
7+20	0.1075	0.32	|Q	v	|	|	|
7+25	0.1098	0.33	|Q	v	|	|	|
7+30	0.1122	0.34	|Q	v	|	|	|
7+35	0.1146	0.35	|Q	v	|	|	|
7+40	0.1171	0.36	|Q	v	|	|	|
7+45	0.1196	0.37	|Q	v	|	|	|
7+50	0.1222	0.38	|Q	v	|	|	|
7+55	0.1250	0.40	|Q	v	|	|	|
8+ 0	0.1277	0.40	|Q	v	|	|	|
8+ 5	0.1306	0.43	|Q	v	|	|	|
8+10	0.1338	0.46	|Q	v	|	|	|
8+15	0.1369	0.46	|Q	v	|	|	|
8+20	0.1401	0.46	|Q	v	|	|	|
8+25	0.1432	0.46	|Q	v	|	|	|
8+30	0.1464	0.46	|Q	v	|	|	|
8+35	0.1496	0.47	|Q	v	|	|	|
8+40	0.1530	0.49	|Q	v	|	|	|
8+45	0.1563	0.49	|Q	v	|	|	|
8+50	0.1598	0.50	|Q	v	|	|	|
8+55	0.1634	0.52	|Q	v	|	|	|
9+ 0	0.1669	0.52	|Q	v	|	|	|
9+ 5	0.1707	0.55	|Q	v	|	|	|
9+10	0.1747	0.58	|Q	|v	|	|	|
9+15	0.1787	0.58	|Q	|v	|	|	|
9+20	0.1828	0.60	|Q	|v	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+25	0.1870	0.61	| Q	| V	|	|
9+30	0.1912	0.61	| Q	| V	|	|
9+35	0.1955	0.63	| Q	| V	|	|
9+40	0.1999	0.64	| Q	| V	|	|
9+45	0.2043	0.64	| Q	| V	|	|
9+50	0.2088	0.66	| Q	| V	|	|
9+55	0.2134	0.67	| Q	| V	|	|
10+ 0	0.2180	0.67	| Q	| V	|	|
10+ 5	0.2218	0.55	| Q	| V	|	|
10+10	0.2250	0.46	| Q	| V	|	|
10+15	0.2282	0.46	| Q	| V	|	|
10+20	0.2313	0.46	| Q	| V	|	|
10+25	0.2345	0.46	| Q	| V	|	|
10+30	0.2376	0.46	| Q	| V	|	|
10+35	0.2413	0.54	| Q	| V	|	|
10+40	0.2455	0.60	| Q	| V	|	|
10+45	0.2497	0.61	| Q	| V	|	|
10+50	0.2539	0.61	| Q	| V	|	|
10+55	0.2581	0.61	| Q	| V	|	|
11+ 0	0.2623	0.61	| Q	| V	|	|
11+ 5	0.2664	0.59	| Q	| V	|	|
11+10	0.2703	0.58	| Q	| V	|	|
11+15	0.2743	0.58	| Q	| V	|	|
11+20	0.2783	0.58	| Q	| V	|	|
11+25	0.2823	0.58	| Q	| V	|	|
11+30	0.2863	0.58	| Q	| V	|	|
11+35	0.2900	0.55	| Q	| V	|	|
11+40	0.2936	0.52	| Q	| V	|	|
11+45	0.2972	0.52	| Q	| V	|	|
11+50	0.3009	0.53	| Q	| V	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+55	0.3046	0.55	| Q	|	v|	|
12+ 0	0.3084	0.55	| Q	|	v|	|
12+ 5	0.3130	0.66	| Q	|	v|	|
12+10	0.3182	0.76	| Q	|	v	|
12+15	0.3234	0.76	| Q	|	v	|
12+20	0.3288	0.78	| Q	|	v	|
12+25	0.3342	0.79	| Q	|	|v	|
12+30	0.3397	0.79	| Q	|	|v	|
12+35	0.3454	0.83	| Q	|	|v	|
12+40	0.3512	0.85	| Q	|	| v	|
12+45	0.3571	0.85	| Q	|	| v	|
12+50	0.3631	0.87	| Q	|	| v	|
12+55	0.3692	0.88	| Q	|	| v	|
13+ 0	0.3753	0.88	| Q	|	| v	|
13+ 5	0.3822	1.01	| Q	|	| v	|
13+10	0.3899	1.12	| Q	|	| v	|
13+15	0.3977	1.13	| Q	|	| v	|
13+20	0.4055	1.13	| Q	|	| v	|
13+25	0.4133	1.13	| Q	|	| v	|
13+30	0.4211	1.13	| Q	|	| v	|
13+35	0.4273	0.90	| Q	|	| v	|
13+40	0.4322	0.71	| Q	|	| v	|
13+45	0.4370	0.70	| Q	|	| v	|
13+50	0.4418	0.70	| Q	|	| v	|
13+55	0.4466	0.70	| Q	|	| v	|
14+ 0	0.4515	0.70	| Q	|	| v	|
14+ 5	0.4567	0.77	| Q	|	| v	|
14+10	0.4624	0.82	| Q	|	| v|	|
14+15	0.4680	0.82	| Q	|	| v|	|
14+20	0.4736	0.81	| Q	|	| v|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+25	0.4791	0.79	| Q	|	|	V
14+30	0.4845	0.79	| Q	|	|	V
14+35	0.4900	0.79	| Q	|	|	V
14+40	0.4954	0.79	| Q	|	|	|V
14+45	0.5009	0.79	| Q	|	|	|V
14+50	0.5062	0.78	| Q	|	|	|V
14+55	0.5115	0.76	| Q	|	|	| V
15+ 0	0.5167	0.76	| Q	|	|	| V
15+ 5	0.5218	0.74	| Q	|	|	| V
15+10	0.5269	0.73	| Q	|	|	| V
15+15	0.5319	0.73	| Q	|	|	| V
15+20	0.5368	0.71	| Q	|	|	| V
15+25	0.5417	0.70	| Q	|	|	| V
15+30	0.5465	0.70	| Q	|	|	| V
15+35	0.5508	0.63	| Q	|	|	| V
15+40	0.5549	0.58	| Q	|	|	| V
15+45	0.5588	0.58	| Q	|	|	| V
15+50	0.5628	0.58	| Q	|	|	| V
15+55	0.5668	0.58	| Q	|	|	| V
16+ 0	0.5708	0.58	| Q	|	|	| V
16+ 5	0.5731	0.33	|Q	|	|	| V
16+10	0.5740	0.13	Q	|	|	| V
16+15	0.5748	0.12	Q	|	|	| V
16+20	0.5757	0.12	Q	|	|	| V
16+25	0.5765	0.12	Q	|	|	| V
16+30	0.5774	0.12	Q	|	|	| V
16+35	0.5781	0.11	Q	|	|	| V
16+40	0.5787	0.09	Q	|	|	| V
16+45	0.5793	0.09	Q	|	|	| V
16+50	0.5800	0.09	Q	|	|	| V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

16+55	0.5806	0.09	Q	|	|	|	V
17+ 0	0.5812	0.09	Q	|	|	|	V
17+ 5	0.5821	0.12	Q	|	|	|	V
17+10	0.5831	0.15	Q	|	|	|	V
17+15	0.5842	0.15	Q	|	|	|	V
17+20	0.5852	0.15	Q	|	|	|	V
17+25	0.5863	0.15	Q	|	|	|	V
17+30	0.5873	0.15	Q	|	|	|	V
17+35	0.5884	0.15	Q	|	|	|	V
17+40	0.5894	0.15	Q	|	|	|	V
17+45	0.5905	0.15	Q	|	|	|	V
17+50	0.5914	0.14	Q	|	|	|	V
17+55	0.5922	0.12	Q	|	|	|	V
18+ 0	0.5931	0.12	Q	|	|	|	V
18+ 5	0.5939	0.12	Q	|	|	|	V
18+10	0.5948	0.12	Q	|	|	|	V
18+15	0.5956	0.12	Q	|	|	|	V
18+20	0.5964	0.12	Q	|	|	|	V
18+25	0.5973	0.12	Q	|	|	|	V
18+30	0.5981	0.12	Q	|	|	|	V
18+35	0.5988	0.11	Q	|	|	|	V
18+40	0.5995	0.09	Q	|	|	|	V
18+45	0.6001	0.09	Q	|	|	|	V
18+50	0.6006	0.07	Q	|	|	|	V
18+55	0.6010	0.06	Q	|	|	|	V
19+ 0	0.6015	0.06	Q	|	|	|	V
19+ 5	0.6020	0.08	Q	|	|	|	V
19+10	0.6026	0.09	Q	|	|	|	V
19+15	0.6033	0.09	Q	|	|	|	V
19+20	0.6040	0.11	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	19+25	0.6048	0.12	Q				V
	19+30	0.6057	0.12	Q				V
	19+35	0.6064	0.11	Q				V
	19+40	0.6070	0.09	Q				V
	19+45	0.6077	0.09	Q				V
	19+50	0.6082	0.07	Q				V
	19+55	0.6086	0.06	Q				V
	20+ 0	0.6090	0.06	Q				V
	20+ 5	0.6096	0.08	Q				V
	20+10	0.6102	0.09	Q				V
	20+15	0.6108	0.09	Q				V
	20+20	0.6114	0.09	Q				V
	20+25	0.6121	0.09	Q				V
	20+30	0.6127	0.09	Q				V
	20+35	0.6133	0.09	Q				V
	20+40	0.6140	0.09	Q				V
	20+45	0.6146	0.09	Q				V
	20+50	0.6151	0.07	Q				V
	20+55	0.6155	0.06	Q				V
	21+ 0	0.6159	0.06	Q				V
	21+ 5	0.6165	0.08	Q				V
	21+10	0.6171	0.09	Q				V
	21+15	0.6177	0.09	Q				V
V|	21+20	0.6182	0.07	Q				V
V|	21+25	0.6187	0.06	Q				V
V|	21+30	0.6191	0.06	Q				V
V|	21+35	0.6196	0.08	Q				V
V|	21+40	0.6202	0.09	Q				V
V|	21+45	0.6209	0.09	Q				V
V|	21+50	0.6214	0.07	Q				V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+55	0.6218	0.06	Q	|	|	|
V|	22+ 0	0.6222	0.06	Q	|	|	|
V|	22+ 5	0.6228	0.08	Q	|	|	|
V|	22+10	0.6234	0.09	Q	|	|	|
V|	22+15	0.6240	0.09	Q	|	|	|
V|	22+20	0.6245	0.07	Q	|	|	|
V|	22+25	0.6250	0.06	Q	|	|	|
V|	22+30	0.6254	0.06	Q	|	|	|
V|	22+35	0.6258	0.06	Q	|	|	|
V|	22+40	0.6262	0.06	Q	|	|	|
V|	22+45	0.6266	0.06	Q	|	|	|
V|	22+50	0.6271	0.06	Q	|	|	|
V|	22+55	0.6275	0.06	Q	|	|	|
V|	23+ 0	0.6279	0.06	Q	|	|	|
V|	23+ 5	0.6283	0.06	Q	|	|	|
V|	23+10	0.6287	0.06	Q	|	|	|
V|	23+15	0.6292	0.06	Q	|	|	|
V|	23+20	0.6296	0.06	Q	|	|	|
V|	23+25	0.6300	0.06	Q	|	|	|
V|	23+30	0.6304	0.06	Q	|	|	|
V|	23+35	0.6308	0.06	Q	|	|	|
V|	23+40	0.6313	0.06	Q	|	|	|
V|	23+45	0.6317	0.06	Q	|	|	|
V|	23+50	0.6321	0.06	Q	|	|	|
V|	23+55	0.6325	0.06	Q	|	|	|
V|	24+ 0	0.6329	0.06	Q	|	|	|
V|	24+ 5	0.6331	0.03	Q	|	|	|
V|	24+10	0.6331	0.00	Q	|	|	|
V							

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version

8.2

Study date 11/09/21 File: moval33post24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--

Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
(Ft.)
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Mi.
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.07	0.037	(0.143)	0.014	0.023
2	0.17	0.07	0.037	(0.142)	0.014	0.023
3	0.25	0.07	0.037	(0.142)	0.014	0.023
4	0.33	0.10	0.056	(0.141)	0.021	0.035
5	0.42	0.10	0.056	(0.140)	0.021	0.035
6	0.50	0.10	0.056	(0.140)	0.021	0.035
7	0.58	0.10	0.056	(0.139)	0.021	0.035
8	0.67	0.10	0.056	(0.139)	0.021	0.035
9	0.75	0.10	0.056	(0.138)	0.021	0.035
10	0.83	0.13	0.074	(0.138)	0.028	0.046
11	0.92	0.13	0.074	(0.137)	0.028	0.046
12	1.00	0.13	0.074	(0.137)	0.028	0.046
13	1.08	0.10	0.056	(0.136)	0.021	0.035
14	1.17	0.10	0.056	(0.136)	0.021	0.035
15	1.25	0.10	0.056	(0.135)	0.021	0.035
16	1.33	0.10	0.056	(0.134)	0.021	0.035
17	1.42	0.10	0.056	(0.134)	0.021	0.035
18	1.50	0.10	0.056	(0.133)	0.021	0.035
19	1.58	0.10	0.056	(0.133)	0.021	0.035
20	1.67	0.10	0.056	(0.132)	0.021	0.035
21	1.75	0.10	0.056	(0.132)	0.021	0.035
22	1.83	0.13	0.074	(0.131)	0.028	0.046
23	1.92	0.13	0.074	(0.131)	0.028	0.046
24	2.00	0.13	0.074	(0.130)	0.028	0.046
25	2.08	0.13	0.074	(0.130)	0.028	0.046
26	2.17	0.13	0.074	(0.129)	0.028	0.046
27	2.25	0.13	0.074	(0.129)	0.028	0.046
28	2.33	0.13	0.074	(0.128)	0.028	0.046
29	2.42	0.13	0.074	(0.128)	0.028	0.046
30	2.50	0.13	0.074	(0.127)	0.028	0.046
31	2.58	0.17	0.093	(0.127)	0.035	0.058
32	2.67	0.17	0.093	(0.126)	0.035	0.058
33	2.75	0.17	0.093	(0.125)	0.035	0.058
34	2.83	0.17	0.093	(0.125)	0.035	0.058
35	2.92	0.17	0.093	(0.124)	0.035	0.058
36	3.00	0.17	0.093	(0.124)	0.035	0.058
37	3.08	0.17	0.093	(0.123)	0.035	0.058
38	3.17	0.17	0.093	(0.123)	0.035	0.058
39	3.25	0.17	0.093	(0.122)	0.035	0.058
40	3.33	0.17	0.093	(0.122)	0.035	0.058
41	3.42	0.17	0.093	(0.121)	0.035	0.058
42	3.50	0.17	0.093	(0.121)	0.035	0.058
43	3.58	0.17	0.093	(0.120)	0.035	0.058
44	3.67	0.17	0.093	(0.120)	0.035	0.058
45	3.75	0.17	0.093	(0.119)	0.035	0.058
46	3.83	0.20	0.111	(0.119)	0.042	0.069
47	3.92	0.20	0.111	(0.118)	0.042	0.069
48	4.00	0.20	0.111	(0.118)	0.042	0.069
49	4.08	0.20	0.111	(0.117)	0.042	0.069
50	4.17	0.20	0.111	(0.117)	0.042	0.069
51	4.25	0.20	0.111	(0.116)	0.042	0.069
52	4.33	0.23	0.130	(0.116)	0.049	0.081
53	4.42	0.23	0.130	(0.115)	0.049	0.081
54	4.50	0.23	0.130	(0.115)	0.049	0.081
55	4.58	0.23	0.130	(0.114)	0.049	0.081
56	4.67	0.23	0.130	(0.114)	0.049	0.081
57	4.75	0.23	0.130	(0.113)	0.049	0.081
58	4.83	0.27	0.148	(0.113)	0.056	0.092
59	4.92	0.27	0.148	(0.112)	0.056	0.092

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

60	5.00	0.27	0.148	(0.112)	0.056	0.092
61	5.08	0.20	0.111	(0.111)	0.042	0.069
62	5.17	0.20	0.111	(0.111)	0.042	0.069
63	5.25	0.20	0.111	(0.110)	0.042	0.069
64	5.33	0.23	0.130	(0.110)	0.049	0.081
65	5.42	0.23	0.130	(0.110)	0.049	0.081
66	5.50	0.23	0.130	(0.109)	0.049	0.081
67	5.58	0.27	0.148	(0.109)	0.056	0.092
68	5.67	0.27	0.148	(0.108)	0.056	0.092
69	5.75	0.27	0.148	(0.108)	0.056	0.092
70	5.83	0.27	0.148	(0.107)	0.056	0.092
71	5.92	0.27	0.148	(0.107)	0.056	0.092
72	6.00	0.27	0.148	(0.106)	0.056	0.092
73	6.08	0.30	0.167	(0.106)	0.063	0.104
74	6.17	0.30	0.167	(0.105)	0.063	0.104
75	6.25	0.30	0.167	(0.105)	0.063	0.104
76	6.33	0.30	0.167	(0.104)	0.063	0.104
77	6.42	0.30	0.167	(0.104)	0.063	0.104
78	6.50	0.30	0.167	(0.103)	0.063	0.104
79	6.58	0.33	0.186	(0.103)	0.071	0.115
80	6.67	0.33	0.186	(0.102)	0.071	0.115
81	6.75	0.33	0.186	(0.102)	0.071	0.115
82	6.83	0.33	0.186	(0.102)	0.071	0.115
83	6.92	0.33	0.186	(0.101)	0.071	0.115
84	7.00	0.33	0.186	(0.101)	0.071	0.115
85	7.08	0.33	0.186	(0.100)	0.071	0.115
86	7.17	0.33	0.186	(0.100)	0.071	0.115
87	7.25	0.33	0.186	(0.099)	0.071	0.115
88	7.33	0.37	0.204	(0.099)	0.078	0.127
89	7.42	0.37	0.204	(0.098)	0.078	0.127
90	7.50	0.37	0.204	(0.098)	0.078	0.127
91	7.58	0.40	0.223	(0.097)	0.085	0.138
92	7.67	0.40	0.223	(0.097)	0.085	0.138
93	7.75	0.40	0.223	(0.097)	0.085	0.138
94	7.83	0.43	0.241	(0.096)	0.092	0.150
95	7.92	0.43	0.241	(0.096)	0.092	0.150
96	8.00	0.43	0.241	(0.095)	0.092	0.150
97	8.08	0.50	0.278	0.095 (0.106)		0.184
98	8.17	0.50	0.278	0.094 (0.106)		0.184
99	8.25	0.50	0.278	0.094 (0.106)		0.185
100	8.33	0.50	0.278	0.093 (0.106)		0.185
101	8.42	0.50	0.278	0.093 (0.106)		0.185
102	8.50	0.50	0.278	0.093 (0.106)		0.186
103	8.58	0.53	0.297	0.092 (0.113)		0.205
104	8.67	0.53	0.297	0.092 (0.113)		0.205
105	8.75	0.53	0.297	0.091 (0.113)		0.206
106	8.83	0.57	0.316	0.091 (0.120)		0.225
107	8.92	0.57	0.316	0.090 (0.120)		0.225
108	9.00	0.57	0.316	0.090 (0.120)		0.226
109	9.08	0.63	0.353	0.090 (0.134)		0.263
110	9.17	0.63	0.353	0.089 (0.134)		0.264
111	9.25	0.63	0.353	0.089 (0.134)		0.264
112	9.33	0.67	0.371	0.088 (0.141)		0.283
113	9.42	0.67	0.371	0.088 (0.141)		0.283
114	9.50	0.67	0.371	0.087 (0.141)		0.284
115	9.58	0.70	0.390	0.087 (0.148)		0.303
116	9.67	0.70	0.390	0.087 (0.148)		0.303
117	9.75	0.70	0.390	0.086 (0.148)		0.304
118	9.83	0.73	0.408	0.086 (0.155)		0.323
119	9.92	0.73	0.408	0.085 (0.155)		0.323

120	10.00	0.73	0.408	0.085	(0.155)	0.323
121	10.08	0.50	0.278	0.085	(0.106)	0.194
122	10.17	0.50	0.278	0.084	(0.106)	0.194
123	10.25	0.50	0.278	0.084	(0.106)	0.195
124	10.33	0.50	0.278	0.083	(0.106)	0.195
125	10.42	0.50	0.278	0.083	(0.106)	0.195
126	10.50	0.50	0.278	0.083	(0.106)	0.196
127	10.58	0.67	0.371	0.082	(0.141)	0.289
128	10.67	0.67	0.371	0.082	(0.141)	0.289
129	10.75	0.67	0.371	0.081	(0.141)	0.290
130	10.83	0.67	0.371	0.081	(0.141)	0.290
131	10.92	0.67	0.371	0.081	(0.141)	0.291
132	11.00	0.67	0.371	0.080	(0.141)	0.291
133	11.08	0.63	0.353	0.080	(0.134)	0.273
134	11.17	0.63	0.353	0.079	(0.134)	0.273
135	11.25	0.63	0.353	0.079	(0.134)	0.274
136	11.33	0.63	0.353	0.079	(0.134)	0.274
137	11.42	0.63	0.353	0.078	(0.134)	0.274
138	11.50	0.63	0.353	0.078	(0.134)	0.275
139	11.58	0.57	0.316	0.077	(0.120)	0.238
140	11.67	0.57	0.316	0.077	(0.120)	0.239
141	11.75	0.57	0.316	0.077	(0.120)	0.239
142	11.83	0.60	0.334	0.076	(0.127)	0.258
143	11.92	0.60	0.334	0.076	(0.127)	0.258
144	12.00	0.60	0.334	0.075	(0.127)	0.259
145	12.08	0.83	0.464	0.075	(0.176)	0.389
146	12.17	0.83	0.464	0.075	(0.176)	0.389
147	12.25	0.83	0.464	0.074	(0.176)	0.390
148	12.33	0.87	0.483	0.074	(0.183)	0.409
149	12.42	0.87	0.483	0.074	(0.183)	0.409
150	12.50	0.87	0.483	0.073	(0.183)	0.409
151	12.58	0.93	0.520	0.073	(0.197)	0.447
152	12.67	0.93	0.520	0.072	(0.197)	0.447
153	12.75	0.93	0.520	0.072	(0.197)	0.448
154	12.83	0.97	0.538	0.072	(0.205)	0.466
155	12.92	0.97	0.538	0.071	(0.205)	0.467
156	13.00	0.97	0.538	0.071	(0.205)	0.467
157	13.08	1.13	0.631	0.071	(0.240)	0.560
158	13.17	1.13	0.631	0.070	(0.240)	0.561
159	13.25	1.13	0.631	0.070	(0.240)	0.561
160	13.33	1.13	0.631	0.070	(0.240)	0.561
161	13.42	1.13	0.631	0.069	(0.240)	0.562
162	13.50	1.13	0.631	0.069	(0.240)	0.562
163	13.58	0.77	0.427	0.069	(0.162)	0.358
164	13.67	0.77	0.427	0.068	(0.162)	0.359
165	13.75	0.77	0.427	0.068	(0.162)	0.359
166	13.83	0.77	0.427	0.068	(0.162)	0.359
167	13.92	0.77	0.427	0.067	(0.162)	0.360
168	14.00	0.77	0.427	0.067	(0.162)	0.360
169	14.08	0.90	0.501	0.066	(0.190)	0.435
170	14.17	0.90	0.501	0.066	(0.190)	0.435
171	14.25	0.90	0.501	0.066	(0.190)	0.435
172	14.33	0.87	0.483	0.065	(0.183)	0.417
173	14.42	0.87	0.483	0.065	(0.183)	0.417
174	14.50	0.87	0.483	0.065	(0.183)	0.418
175	14.58	0.87	0.483	0.064	(0.183)	0.418
176	14.67	0.87	0.483	0.064	(0.183)	0.418
177	14.75	0.87	0.483	0.064	(0.183)	0.419
178	14.83	0.83	0.464	0.063	(0.176)	0.401
179	14.92	0.83	0.464	0.063	(0.176)	0.401

180	15.00	0.83	0.464	0.063	(0.176)	0.401
181	15.08	0.80	0.445	0.063	(0.169)	0.383
182	15.17	0.80	0.445	0.062	(0.169)	0.383
183	15.25	0.80	0.445	0.062	(0.169)	0.384
184	15.33	0.77	0.427	0.062	(0.162)	0.365
185	15.42	0.77	0.427	0.061	(0.162)	0.366
186	15.50	0.77	0.427	0.061	(0.162)	0.366
187	15.58	0.63	0.353	0.061	(0.134)	0.292
188	15.67	0.63	0.353	0.060	(0.134)	0.292
189	15.75	0.63	0.353	0.060	(0.134)	0.293
190	15.83	0.63	0.353	0.060	(0.134)	0.293
191	15.92	0.63	0.353	0.059	(0.134)	0.293
192	16.00	0.63	0.353	0.059	(0.134)	0.294
193	16.08	0.13	0.074	(0.059)	0.028	0.046
194	16.17	0.13	0.074	(0.058)	0.028	0.046
195	16.25	0.13	0.074	(0.058)	0.028	0.046
196	16.33	0.13	0.074	(0.058)	0.028	0.046
197	16.42	0.13	0.074	(0.058)	0.028	0.046
198	16.50	0.13	0.074	(0.057)	0.028	0.046
199	16.58	0.10	0.056	(0.057)	0.021	0.035
200	16.67	0.10	0.056	(0.057)	0.021	0.035
201	16.75	0.10	0.056	(0.056)	0.021	0.035
202	16.83	0.10	0.056	(0.056)	0.021	0.035
203	16.92	0.10	0.056	(0.056)	0.021	0.035
204	17.00	0.10	0.056	(0.056)	0.021	0.035
205	17.08	0.17	0.093	(0.055)	0.035	0.058
206	17.17	0.17	0.093	(0.055)	0.035	0.058
207	17.25	0.17	0.093	(0.055)	0.035	0.058
208	17.33	0.17	0.093	(0.054)	0.035	0.058
209	17.42	0.17	0.093	(0.054)	0.035	0.058
210	17.50	0.17	0.093	(0.054)	0.035	0.058
211	17.58	0.17	0.093	(0.054)	0.035	0.058
212	17.67	0.17	0.093	(0.053)	0.035	0.058
213	17.75	0.17	0.093	(0.053)	0.035	0.058
214	17.83	0.13	0.074	(0.053)	0.028	0.046
215	17.92	0.13	0.074	(0.053)	0.028	0.046
216	18.00	0.13	0.074	(0.052)	0.028	0.046
217	18.08	0.13	0.074	(0.052)	0.028	0.046
218	18.17	0.13	0.074	(0.052)	0.028	0.046
219	18.25	0.13	0.074	(0.052)	0.028	0.046
220	18.33	0.13	0.074	(0.051)	0.028	0.046
221	18.42	0.13	0.074	(0.051)	0.028	0.046
222	18.50	0.13	0.074	(0.051)	0.028	0.046
223	18.58	0.10	0.056	(0.051)	0.021	0.035
224	18.67	0.10	0.056	(0.050)	0.021	0.035
225	18.75	0.10	0.056	(0.050)	0.021	0.035
226	18.83	0.07	0.037	(0.050)	0.014	0.023
227	18.92	0.07	0.037	(0.050)	0.014	0.023
228	19.00	0.07	0.037	(0.049)	0.014	0.023
229	19.08	0.10	0.056	(0.049)	0.021	0.035
230	19.17	0.10	0.056	(0.049)	0.021	0.035
231	19.25	0.10	0.056	(0.049)	0.021	0.035
232	19.33	0.13	0.074	(0.048)	0.028	0.046
233	19.42	0.13	0.074	(0.048)	0.028	0.046
234	19.50	0.13	0.074	(0.048)	0.028	0.046
235	19.58	0.10	0.056	(0.048)	0.021	0.035
236	19.67	0.10	0.056	(0.048)	0.021	0.035
237	19.75	0.10	0.056	(0.047)	0.021	0.035
238	19.83	0.07	0.037	(0.047)	0.014	0.023
239	19.92	0.07	0.037	(0.047)	0.014	0.023

Peak flow rate of this hydrograph = 2.267(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 5 Minute intervals ((CFS))

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Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0003	0.05	Q			
0+10	0.0010	0.09	Q	|	|	|
0+15	0.0016	0.09	Q	|	|	|
0+20	0.0024	0.12	Q	|	|	|
0+25	0.0034	0.14	Q	|	|	|
0+30	0.0043	0.14	Q	|	|	|
0+35	0.0053	0.14	Q	|	|	|
0+40	0.0062	0.14	Q	|	|	|
0+45	0.0072	0.14	Q	|	|	|
0+50	0.0083	0.16	Q	|	|	|
0+55	0.0096	0.18	Q	|	|	|
1+ 0	0.0109	0.19	Q	|	|	|
1+ 5	0.0120	0.16	Q	|	|	|
1+10	0.0130	0.14	Q	|	|	|
1+15	0.0139	0.14	Q	|	|	|
1+20	0.0149	0.14	Q	|	|	|
1+25	0.0158	0.14	Q	|	|	|
1+30	0.0168	0.14	Q	|	|	|
1+35	0.0178	0.14	Q	|	|	|
1+40	0.0187	0.14	Q	|	|	|
1+45	0.0197	0.14	Q	|	|	|
1+50	0.0208	0.16	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+55	0.0221	0.18	Q	|	|	|
2+ 0	0.0234	0.19	Q	|	|	|
2+ 5	0.0246	0.19	Q	|	|	|
2+10	0.0259	0.19	Q	|	|	|
2+15	0.0272	0.19	Q	|	|	|
2+20	0.0285	0.19	Q	|	|	|
2+25	0.0297	0.19	QV	|	|	|
2+30	0.0310	0.19	QV	|	|	|
2+35	0.0325	0.21	QV	|	|	|
2+40	0.0341	0.23	QV	|	|	|
2+45	0.0357	0.23	QV	|	|	|
2+50	0.0373	0.23	QV	|	|	|
2+55	0.0389	0.23	QV	|	|	|
3+ 0	0.0405	0.23	QV	|	|	|
3+ 5	0.0421	0.23	QV	|	|	|
3+10	0.0437	0.23	QV	|	|	|
3+15	0.0453	0.23	QV	|	|	|
3+20	0.0469	0.23	QV	|	|	|
3+25	0.0485	0.23	QV	|	|	|
3+30	0.0501	0.23	QV	|	|	|
3+35	0.0516	0.23	QV	|	|	|
3+40	0.0532	0.23	QV	|	|	|
3+45	0.0548	0.23	QV	|	|	|
3+50	0.0566	0.26	|Q	|	|	|
3+55	0.0585	0.28	|QV	|	|	|
4+ 0	0.0604	0.28	|QV	|	|	|
4+ 5	0.0624	0.28	|QV	|	|	|
4+10	0.0643	0.28	|QV	|	|	|
4+15	0.0662	0.28	|QV	|	|	|
4+20	0.0683	0.30	|QV	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+25	0.0705	0.32	|QV	|	|	|
4+30	0.0728	0.32	|QV	|	|	|
4+35	0.0750	0.32	|QV	|	|	|
4+40	0.0772	0.32	|QV	|	|	|
4+45	0.0795	0.32	|QV	|	|	|
4+50	0.0819	0.35	|QV	|	|	|
4+55	0.0844	0.37	|QV	|	|	|
5+ 0	0.0870	0.37	|QV	|	|	|
5+ 5	0.0892	0.32	|Q V	|	|	|
5+10	0.0911	0.28	|Q V	|	|	|
5+15	0.0930	0.28	|Q V	|	|	|
5+20	0.0951	0.30	|Q V	|	|	|
5+25	0.0974	0.32	|Q V	|	|	|
5+30	0.0996	0.32	|Q V	|	|	|
5+35	0.1020	0.35	|Q V	|	|	|
5+40	0.1046	0.37	|Q V	|	|	|
5+45	0.1071	0.37	|Q V	|	|	|
5+50	0.1097	0.37	|Q V	|	|	|
5+55	0.1122	0.37	|Q V	|	|	|
6+ 0	0.1148	0.37	|Q V	|	|	|
6+ 5	0.1175	0.40	|Q V	|	|	|
6+10	0.1204	0.42	|Q V	|	|	|
6+15	0.1233	0.42	|Q V	|	|	|
6+20	0.1261	0.42	|Q V	|	|	|
6+25	0.1290	0.42	|Q V	|	|	|
6+30	0.1319	0.42	|Q V	|	|	|
6+35	0.1350	0.44	|Q V	|	|	|
6+40	0.1381	0.46	|Q V	|	|	|
6+45	0.1413	0.46	|Q V	|	|	|
6+50	0.1445	0.46	|Q V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+55	0.1477	0.46	|	Q	V	|			
7+ 0	0.1509	0.46	|	Q	V	|			
7+ 5	0.1541	0.46	|	Q	V	|			
7+10	0.1573	0.46	|	Q	V	|			
7+15	0.1605	0.46	|	Q	V	|			
7+20	0.1639	0.49	|	Q	V	|			
7+25	0.1674	0.51	|	Q	V	|			
7+30	0.1709	0.51	|	Q	V	|			
7+35	0.1746	0.54	|	Q	V	|			
7+40	0.1784	0.56	|	Q	V	|			
7+45	0.1823	0.56	|	Q	V	|			
7+50	0.1863	0.58	|	Q	V	|			
7+55	0.1904	0.60	|	Q	V	|			
8+ 0	0.1946	0.60	|	Q	V	|			
8+ 5	0.1992	0.68	|	Q	V	|			
8+10	0.2043	0.74	|	Q	V	|			
8+15	0.2094	0.74	|	Q	V	|			
8+20	0.2146	0.75	|	Q	V	|			
8+25	0.2197	0.75	|	Q	V	|			
8+30	0.2249	0.75	|	Q	V	|			
8+35	0.2303	0.79	|	Q	V	|			
8+40	0.2360	0.82	|	Q	V	|			
8+45	0.2417	0.83	|	Q	V	|			
8+50	0.2477	0.87	|	Q	V	|			
8+55	0.2539	0.90	|	Q	V	|			
9+ 0	0.2602	0.91	|	Q	V	|			
9+ 5	0.2670	0.99	|	Q	V	|			
9+10	0.2743	1.06	|	Q	V	|			
9+15	0.2817	1.06	|	Q	V	|			
9+20	0.2893	1.11	|	Q	V	|			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+25	0.2971	1.14	Q	V		
9+30	0.3050	1.14	Q	V		
9+35	0.3132	1.19	Q	V		
9+40	0.3216	1.22	Q	|V		
9+45	0.3300	1.22	Q	|V		
9+50	0.3387	1.27	Q	|V		
9+55	0.3477	1.30	Q	|V		
10+ 0	0.3566	1.30	Q	| V		
10+ 5	0.3637	1.02	Q	| V		
10+10	0.3692	0.80	Q	| V		
10+15	0.3746	0.78	Q	| V		
10+20	0.3800	0.79	Q	| V		
10+25	0.3854	0.79	Q	| V		
10+30	0.3908	0.79	Q	| V		
10+35	0.3977	1.00	Q	| V		
10+40	0.4056	1.16	Q	| V		
10+45	0.4137	1.17	Q	| V		
10+50	0.4218	1.17	Q	| V		
10+55	0.4298	1.17	Q	| V		
11+ 0	0.4379	1.17	Q	| V		
11+ 5	0.4457	1.13	Q	| V		
11+10	0.4533	1.10	Q	| V		
11+15	0.4609	1.10	Q	| V		
11+20	0.4685	1.10	Q	| V		
11+25	0.4761	1.11	Q	| V		
11+30	0.4838	1.11	Q	| V		
11+35	0.4909	1.03	Q	| V		
11+40	0.4975	0.97	Q	| V		
11+45	0.5041	0.96	Q	| V		
11+50	0.5111	1.01	Q	| V		

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+55	0.5182	1.04	Q	V
12+ 0	0.5254	1.04	Q	V
12+ 5	0.5345	1.33	Q	V
12+10	0.5452	1.55	Q	V
12+15	0.5561	1.57	Q	V
12+20	0.5672	1.61	Q	V
12+25	0.5785	1.65	Q	V
12+30	0.5899	1.65	Q	V
12+35	0.6018	1.73	Q	V
12+40	0.6142	1.80	Q	V
12+45	0.6266	1.80	Q	V
12+50	0.6394	1.85	Q	V
12+55	0.6523	1.88	Q	V
13+ 0	0.6653	1.88	Q	V
13+ 5	0.6797	2.09	Q	V
13+10	0.6952	2.25	Q	V
13+15	0.7107	2.26	Q	V
13+20	0.7263	2.26	Q	V
13+25	0.7419	2.27	Q	V
13+30	0.7575	2.27	Q	V
13+35	0.7701	1.82	Q	V
13+40	0.7802	1.47	Q	V
13+45	0.7902	1.45	Q	V
13+50	0.8001	1.45	Q	V
13+55	0.8101	1.45	Q	V
14+ 0	0.8201	1.45	Q	V
14+ 5	0.8313	1.62	Q	V
14+10	0.8433	1.75	Q	V
14+15	0.8554	1.76	Q	V
14+20	0.8672	1.72	Q	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+25	0.8788	1.69	|	Q	|	|	|	V
14+30	0.8904	1.68	|	Q	|	|	|	V
14+35	0.9020	1.69	|	Q	|	|	|	V
14+40	0.9136	1.69	|	Q	|	|	|	|V
14+45	0.9252	1.69	|	Q	|	|	|	|V
14+50	0.9366	1.65	|	Q	|	|	|	| V
14+55	0.9477	1.62	|	Q	|	|	|	| V
15+ 0	0.9589	1.62	|	Q	|	|	|	| V
15+ 5	0.9697	1.58	|	Q	|	|	|	| V
15+10	0.9804	1.55	|	Q	|	|	|	| V
15+15	0.9910	1.55	|	Q	|	|	|	| V
15+20	1.0014	1.51	|	Q	|	|	|	| V
15+25	1.0116	1.48	|	Q	|	|	|	| V
15+30	1.0218	1.48	|	Q	|	|	|	| V
15+35	1.0308	1.31	|	Q	|	|	|	| V
15+40	1.0390	1.19	|	Q	|	|	|	| V
15+45	1.0471	1.18	|	Q	|	|	|	| V
15+50	1.0552	1.18	|	Q	|	|	|	| V
15+55	1.0634	1.18	|	Q	|	|	|	| V
16+ 0	1.0715	1.18	|	Q	|	|	|	| V
16+ 5	1.0759	0.64	|	Q	|	|	|	| V
16+10	1.0774	0.21	Q	|	|	|	|	| V
16+15	1.0787	0.19	Q	|	|	|	|	| V
16+20	1.0800	0.19	Q	|	|	|	|	| V
16+25	1.0812	0.19	Q	|	|	|	|	| V
16+30	1.0825	0.19	Q	|	|	|	|	| V
16+35	1.0836	0.16	Q	|	|	|	|	| V
16+40	1.0846	0.14	Q	|	|	|	|	| V
16+45	1.0855	0.14	Q	|	|	|	|	| V
16+50	1.0865	0.14	Q	|	|	|	|	| V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

16+55	1.0875	0.14	Q	|	|	|	V
17+ 0	1.0884	0.14	Q	|	|	|	V
17+ 5	1.0897	0.19	Q	|	|	|	V
17+10	1.0913	0.23	Q	|	|	|	V
17+15	1.0929	0.23	Q	|	|	|	V
17+20	1.0945	0.23	Q	|	|	|	V
17+25	1.0961	0.23	Q	|	|	|	V
17+30	1.0977	0.23	Q	|	|	|	V
17+35	1.0993	0.23	Q	|	|	|	V
17+40	1.1009	0.23	Q	|	|	|	V
17+45	1.1025	0.23	Q	|	|	|	V
17+50	1.1039	0.21	Q	|	|	|	V
17+55	1.1052	0.19	Q	|	|	|	V
18+ 0	1.1065	0.19	Q	|	|	|	V
18+ 5	1.1078	0.19	Q	|	|	|	V
18+10	1.1090	0.19	Q	|	|	|	V
18+15	1.1103	0.19	Q	|	|	|	V
18+20	1.1116	0.19	Q	|	|	|	V
18+25	1.1129	0.19	Q	|	|	|	V
18+30	1.1142	0.19	Q	|	|	|	V
18+35	1.1153	0.16	Q	|	|	|	V
18+40	1.1162	0.14	Q	|	|	|	V
18+45	1.1172	0.14	Q	|	|	|	V
18+50	1.1180	0.11	Q	|	|	|	V
18+55	1.1186	0.09	Q	|	|	|	V
19+ 0	1.1193	0.09	Q	|	|	|	V
19+ 5	1.1201	0.12	Q	|	|	|	V
19+10	1.1210	0.14	Q	|	|	|	V
19+15	1.1220	0.14	Q	|	|	|	V
19+20	1.1231	0.16	Q	|	|	|	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	19+25	1.1244	0.18	Q				V
	19+30	1.1257	0.19	Q				V
	19+35	1.1268	0.16	Q				V
	19+40	1.1277	0.14	Q				V
	19+45	1.1287	0.14	Q				V
	19+50	1.1295	0.11	Q				V
	19+55	1.1301	0.09	Q				V
	20+ 0	1.1308	0.09	Q				V
	20+ 5	1.1316	0.12	Q				V
	20+10	1.1325	0.14	Q				V
	20+15	1.1335	0.14	Q				V
	20+20	1.1345	0.14	Q				V
	20+25	1.1354	0.14	Q				V
	20+30	1.1364	0.14	Q				V
	20+35	1.1373	0.14	Q				V
	20+40	1.1383	0.14	Q				V
	20+45	1.1392	0.14	Q				V
V|	20+50	1.1400	0.11	Q				V
V|	20+55	1.1407	0.09	Q				V
V|	21+ 0	1.1413	0.09	Q				V
V|	21+ 5	1.1421	0.12	Q				V
V|	21+10	1.1431	0.14	Q				V
V|	21+15	1.1440	0.14	Q				V
V|	21+20	1.1448	0.11	Q				V
V|	21+25	1.1455	0.09	Q				V
V|	21+30	1.1461	0.09	Q				V
V|	21+35	1.1469	0.12	Q				V
V|	21+40	1.1479	0.14	Q				V
V|	21+45	1.1488	0.14	Q				V
V|	21+50	1.1496	0.11	Q				V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+55	1.1503	0.09	Q	|	|	|
V|	22+ 0	1.1509	0.09	Q	|	|	|
V|	22+ 5	1.1517	0.12	Q	|	|	|
V|	22+10	1.1527	0.14	Q	|	|	|
V|	22+15	1.1536	0.14	Q	|	|	|
V|	22+20	1.1544	0.11	Q	|	|	|
V|	22+25	1.1551	0.09	Q	|	|	|
V|	22+30	1.1557	0.09	Q	|	|	|
V|	22+35	1.1563	0.09	Q	|	|	|
V|	22+40	1.1570	0.09	Q	|	|	|
V|	22+45	1.1576	0.09	Q	|	|	|
V|	22+50	1.1583	0.09	Q	|	|	|
V|	22+55	1.1589	0.09	Q	|	|	|
V|	23+ 0	1.1595	0.09	Q	|	|	|
V|	23+ 5	1.1602	0.09	Q	|	|	|
V|	23+10	1.1608	0.09	Q	|	|	|
V|	23+15	1.1615	0.09	Q	|	|	|
V|	23+20	1.1621	0.09	Q	|	|	|
V|	23+25	1.1627	0.09	Q	|	|	|
V|	23+30	1.1634	0.09	Q	|	|	|
V|	23+35	1.1640	0.09	Q	|	|	|
V|	23+40	1.1647	0.09	Q	|	|	|
V|	23+45	1.1653	0.09	Q	|	|	|
V|	23+50	1.1659	0.09	Q	|	|	|
V|	23+55	1.1666	0.09	Q	|	|	|
V|	24+ 0	1.1672	0.09	Q	|	|	|
V|	24+ 5	1.1675	0.04	Q	|	|	|
V|	24+10	1.1675	0.00	Q	|	|	|
V							

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post12.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.185	(0.155)	0.070	0.114
2	0.17	4.20	0.235	(0.155)	0.089	0.146
3	0.25	4.40	0.246	(0.155)	0.093	0.153
4	0.33	4.80	0.268	(0.155)	0.102	0.166
5	0.42	5.20	0.291	(0.155)	0.110	0.180
6	0.50	6.20	0.347	(0.155)	0.132	0.215
7	0.58	6.80	0.380	(0.155)	0.144	0.236
8	0.67	8.80	0.492	0.155	(0.187)	0.337
9	0.75	13.90	0.777	0.155	(0.295)	0.622
10	0.83	31.40	1.756	0.155	(0.667)	1.601
11	0.92	7.20	0.403	(0.155)	0.153	0.250
12	1.00	3.80	0.212	(0.155)	0.081	0.132

(Loss Rate Not Used)

Sum = 100.0 Sum = 4.2

Flood volume = Effective rainfall 0.35(In)
 times area 10.9(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
 Total soil loss = 0.12(In)
 Total soil loss = 0.109(Ac.Ft)
 Total rainfall = 0.47(In)
 Flood volume = 13690.4 Cubic Feet
 Total soil loss = 4746.0 Cubic Feet

 -- Peak flow rate of this hydrograph = 11.448(CFS)

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 1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0
20.0						
0+ 5	0.0039	0.56	VQ	|	|	|
0+10	0.0130	1.33	|VQ	|	|	|
0+15	0.0241	1.60	| Q	|	|	|
0+20	0.0360	1.74	| QV	|	|	|
0+25	0.0490	1.89	| Q V	|	|	|
0+30	0.0638	2.14	| Q V	|	|	|
0+35	0.0806	2.44	| Q V	|	|	|
0+40	0.1017	3.07	| Q	| V	|	|

|	0+45	0.1364	5.04	|	Q	V	|	|
|	0+50	0.2153	11.45	|	|	|	Q	V
|	0+55	0.2857	10.22	|	|	Q	|	V
|	1+ 0	0.3066	3.03	|	Q	|	|	|
V	1+ 5	0.3135	1.01		Q			
V	1+10	0.3142	0.10	Q				
V	1+15	0.3143	0.01	Q				
V								

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post15.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.252	(0.155)	0.096	0.156
2	0.17	4.20	0.320	(0.155)	0.122	0.199
3	0.25	4.40	0.336	(0.155)	0.128	0.208
4	0.33	4.80	0.366	(0.155)	0.139	0.227
5	0.42	5.20	0.397	(0.155)	0.151	0.246
6	0.50	6.20	0.473	0.155	(0.180)	0.318
7	0.58	6.80	0.519	0.155	(0.197)	0.364
8	0.67	8.80	0.671	0.155	(0.255)	0.516
9	0.75	13.90	1.060	0.155	(0.403)	0.905
10	0.83	31.40	2.395	0.155	(0.910)	2.240
11	0.92	7.20	0.549	0.155	(0.209)	0.394
12	1.00	3.80	0.290	(0.155)	0.110	0.180

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.0

Flood volume = Effective rainfall 0.50(In)
 times area 10.9(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)
 Total soil loss = 0.14(In)
 Total soil loss = 0.127(Ac.Ft)
 Total rainfall = 0.64(In)
 Flood volume = 19629.0 Cubic Feet
 Total soil loss = 5516.4 Cubic Feet

Peak flow rate of this hydrograph = 16.231(CFS)

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0
20.0						
0+ 5	0.0053	0.77	VQ			
0+10	0.0178	1.81	|V Q			
0+15	0.0328	2.18	| V Q			
0+20	0.0491	2.37	| Q			
0+25	0.0669	2.57	| Q			
0+30	0.0878	3.04	| QV			
0+35	0.1131	3.67	| Q V			
0+40	0.1455	4.71	| Q| V			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	0+45	0.1970	7.48	|	|	Q	V	|	|
|	0+50	0.3088	16.23	|	|			|	V | Q
|	0+55	0.4090	14.55	|	|			|	Q | V
|	1+ 0	0.4398	4.46	|	Q	|	|	|	|
V|	1+ 5	0.4495	1.41	|	Q	|	|	|	|
V|	1+10	0.4505	0.15	Q	|	|	|	|	|
V|	1+15	0.4506	0.02	Q	|	|	|	|	|
V									

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--
0.017
(Ft.)
Mi.
Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.302	(0.155)	0.115	0.188
2	0.17	4.20	0.385	(0.155)	0.146	0.239
3	0.25	4.40	0.403	(0.155)	0.153	0.250
4	0.33	4.80	0.440	0.155	(0.167)	0.285
5	0.42	5.20	0.477	0.155	(0.181)	0.322
6	0.50	6.20	0.568	0.155	(0.216)	0.414
7	0.58	6.80	0.623	0.155	(0.237)	0.469
8	0.67	8.80	0.807	0.155	(0.306)	0.652
9	0.75	13.90	1.274	0.155	(0.484)	1.119
10	0.83	31.40	2.878	0.155	(1.094)	2.723
11	0.92	7.20	0.660	0.155	(0.251)	0.505
12	1.00	3.80	0.348	(0.155)	0.132	0.216

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.4

Flood volume = Effective rainfall 0.62(In)
 times area 10.9(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
 Total soil loss = 0.15(In)
 Total soil loss = 0.135(Ac.Ft)
 Total rainfall = 0.76(In)
 Flood volume = 24336.7 Cubic Feet
 Total soil loss = 5884.0 Cubic Feet

 -- Peak flow rate of this hydrograph = 19.850(CFS)

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 1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

--
 Time(h+m) Volume Ac.Ft Q(CFS) 0 5.0 10.0 15.0
 20.0

0+ 5	0.0064	0.92	VQ	|	|	|
0+10	0.0214	2.18	|V Q	|	|	|
0+15	0.0395	2.63	| V Q	|	|	|
0+20	0.0595	2.91	| VQ	|	|	|
0+25	0.0821	3.29	| VQ	|	|	|
0+30	0.1094	3.96	| Q	|	|	|
0+35	0.1421	4.75	| QV	|	|	|
0+40	0.1835	6.00	| QV	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	0+45	0.2477	9.33	|	|	vQ	|	|
|	0+50	0.3844	19.85	|	|	|	v	|
Q|	0+55	0.5072	17.83	|	|	|	|	QV
|	1+ 0	0.5455	5.55	|	|Q	|	|	|
v	1+ 5	0.5573	1.72	Q				
v	1+10	0.5586	0.18	Q				
v	1+15	0.5587	0.02	Q				
v								

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post1100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--
Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
0.017 Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
Length along longest watercourse = 0.261 Mi.
Mi. Length along longest watercourse measured to centroid = 0.157

Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	3.30	0.471	0.080	(0.179)	0.391
2	0.17	4.20	0.600	0.080	(0.228)	0.519
3	0.25	4.40	0.628	0.080	(0.239)	0.548
4	0.33	4.80	0.685	0.080	(0.260)	0.605
5	0.42	5.20	0.742	0.080	(0.282)	0.662
6	0.50	6.20	0.885	0.080	(0.336)	0.805
7	0.58	6.80	0.971	0.080	(0.369)	0.891
8	0.67	8.80	1.257	0.080	(0.477)	1.176
9	0.75	13.90	1.985	0.080	(0.754)	1.904
10	0.83	31.40	4.483	0.080	(1.704)	4.403
11	0.92	7.20	1.028	0.080	(0.391)	0.948
12	1.00	3.80	0.543	0.080	(0.206)	0.462

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.3

Flood volume = Effective rainfall 1.11(In)
 times area 10.9(Ac.)/[(In)/(Ft.)] = 1.0(Ac.Ft)
 Total soil loss = 0.08(In)
 Total soil loss = 0.073(Ac.Ft)
 Total rainfall = 1.19(In)
 Flood volume = 43897.2 Cubic Feet
 Total soil loss = 3182.9 Cubic Feet

Peak flow rate of this hydrograph = 32.689(CFS)

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	10.0	20.0	30.0
40.0						
0+ 5	0.0132	1.92	VQ			
0+10	0.0453	4.65	|V Q			
0+15	0.0847	5.72	| V Q			
0+20	0.1279	6.27	| VQ			
0+25	0.1753	6.89	| Q			
0+30	0.2299	7.93	| Q V|			
0+35	0.2930	9.16	| Q|V			
0+40	0.3696	11.12	| Q V			

|	0+45	0.4819	16.30	|	|	Q	V|	|
|	0+50	0.7070	32.69	|	|		|	V | Q
|	0+55	0.9105	29.54	|	|		|	Q| V
|	1+ 0	0.9810	10.25	|	Q		|	V
|	1+ 5	1.0049	3.47	|	Q		|	
V|	1+10	1.0074	0.37	Q			|	
V|	1+15	1.0077	0.04	Q			|	
V|								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.125	(0.155)	0.047	0.077
2	0.17	1.30	0.125	(0.155)	0.047	0.077
3	0.25	1.10	0.105	(0.155)	0.040	0.065
4	0.33	1.50	0.144	(0.155)	0.055	0.089
5	0.42	1.50	0.144	(0.155)	0.055	0.089
6	0.50	1.80	0.173	(0.155)	0.066	0.107
7	0.58	1.50	0.144	(0.155)	0.055	0.089
8	0.67	1.80	0.173	(0.155)	0.066	0.107
9	0.75	1.80	0.173	(0.155)	0.066	0.107
10	0.83	1.50	0.144	(0.155)	0.055	0.089
11	0.92	1.60	0.153	(0.155)	0.058	0.095
12	1.00	1.80	0.173	(0.155)	0.066	0.107
13	1.08	2.20	0.211	(0.155)	0.080	0.131
14	1.17	2.20	0.211	(0.155)	0.080	0.131
15	1.25	2.20	0.211	(0.155)	0.080	0.131
16	1.33	2.00	0.192	(0.155)	0.073	0.119
17	1.42	2.60	0.249	(0.155)	0.095	0.155
18	1.50	2.70	0.259	(0.155)	0.098	0.160
19	1.58	2.40	0.230	(0.155)	0.087	0.143
20	1.67	2.70	0.259	(0.155)	0.098	0.160
21	1.75	3.30	0.316	(0.155)	0.120	0.196
22	1.83	3.10	0.297	(0.155)	0.113	0.184
23	1.92	2.90	0.278	(0.155)	0.106	0.172
24	2.00	3.00	0.288	(0.155)	0.109	0.178
25	2.08	3.10	0.297	(0.155)	0.113	0.184
26	2.17	4.20	0.403	(0.155)	0.153	0.250
27	2.25	5.00	0.479	0.155	(0.182)	0.325
28	2.33	3.50	0.336	(0.155)	0.128	0.208
29	2.42	6.80	0.652	0.155	(0.248)	0.497
30	2.50	7.30	0.700	0.155	(0.266)	0.545
31	2.58	8.20	0.786	0.155	(0.299)	0.631
32	2.67	5.90	0.566	0.155	(0.215)	0.411
33	2.75	2.00	0.192	(0.155)	0.073	0.119
34	2.83	1.80	0.173	(0.155)	0.066	0.107
35	2.92	1.80	0.173	(0.155)	0.066	0.107
36	3.00	0.60	0.058	(0.155)	0.022	0.036

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.4

Flood volume = Effective rainfall 0.53(In)
times area 10.9(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)
Total soil loss = 0.27(In)
Total soil loss = 0.243(Ac.Ft)
Total rainfall = 0.80(In)
Flood volume = 21037.4 Cubic Feet
Total soil loss = 10575.1 Cubic Feet

Peak flow rate of this hydrograph = 6.356(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0							
0+ 5	0.0026	0.38	VQ				
0+10	0.0081	0.79	V Q				
0+15	0.0135	0.78	|V Q				
0+20	0.0193	0.84	|V Q				
0+25	0.0259	0.96	| VQ				
0+30	0.0333	1.07	| V Q				
0+35	0.0407	1.08	| VQ				
0+40	0.0481	1.08	| VQ				
0+45	0.0561	1.16	| Q				
0+50	0.0636	1.09	| QV				
0+55	0.0707	1.02	| QV				
1+ 0	0.0782	1.10	| Q V				
1+ 5	0.0871	1.28	| Q V				
1+10	0.0969	1.42	| Q V				
1+15	0.1068	1.44	| Q V				
1+20	0.1162	1.38	| Q V|				
1+25	0.1265	1.49	| Q V				
1+30	0.1382	1.70	| Q |V				
1+35	0.1497	1.67	| Q | V				
1+40	0.1612	1.67	| Q | V				
1+45	0.1745	1.93	| Q | V				
1+50	0.1888	2.07	| Q | V				
1+55	0.2023	1.97	| Q | V				
2+ 0	0.2157	1.93	| Q | V				
2+ 5	0.2293	1.99	| Q | V				
2+10	0.2455	2.34	| Q| V				
2+15	0.2666	3.07	| Q | V				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+20	0.2868	2.94	|	|Q	|	V	|
|	2+25	0.3129	3.79	|	|	Q	|	V
|	2+30	0.3508	5.51	|	|	|	Q	V|
|	2+35	0.3946	6.36	|	|	|	Q	|
|	2+40	0.4345	5.79	|	|	|	Q	|
|	2+45	0.4567	3.23	|	|	Q	|	|
|	2+50	0.4668	1.48	|	Q	|	|	|
|	2+55	0.4752	1.21	|	Q	|	|	|
V|	3+ 0	0.4809	0.83	|	Q	|	|	|
V|	3+ 5	0.4827	0.27	|	Q	|	|	|
V|	3+10	0.4829	0.03	Q	|	|	|	|
V|	3+15	0.4830	0.00	Q	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post35.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.165	(0.155)	0.063	0.102
2	0.17	1.30	0.165	(0.155)	0.063	0.102
3	0.25	1.10	0.139	(0.155)	0.053	0.086
4	0.33	1.50	0.190	(0.155)	0.072	0.118
5	0.42	1.50	0.190	(0.155)	0.072	0.118
6	0.50	1.80	0.228	(0.155)	0.087	0.141
7	0.58	1.50	0.190	(0.155)	0.072	0.118
8	0.67	1.80	0.228	(0.155)	0.087	0.141
9	0.75	1.80	0.228	(0.155)	0.087	0.141
10	0.83	1.50	0.190	(0.155)	0.072	0.118
11	0.92	1.60	0.202	(0.155)	0.077	0.126
12	1.00	1.80	0.228	(0.155)	0.087	0.141
13	1.08	2.20	0.278	(0.155)	0.106	0.173
14	1.17	2.20	0.278	(0.155)	0.106	0.173
15	1.25	2.20	0.278	(0.155)	0.106	0.173
16	1.33	2.00	0.253	(0.155)	0.096	0.157
17	1.42	2.60	0.329	(0.155)	0.125	0.204
18	1.50	2.70	0.342	(0.155)	0.130	0.212
19	1.58	2.40	0.304	(0.155)	0.115	0.188
20	1.67	2.70	0.342	(0.155)	0.130	0.212
21	1.75	3.30	0.418	0.155	(0.159)	0.263
22	1.83	3.10	0.392	(0.155)	0.149	0.243
23	1.92	2.90	0.367	(0.155)	0.139	0.228
24	2.00	3.00	0.380	(0.155)	0.144	0.235
25	2.08	3.10	0.392	(0.155)	0.149	0.243
26	2.17	4.20	0.531	0.155	(0.202)	0.377
27	2.25	5.00	0.633	0.155	(0.240)	0.478
28	2.33	3.50	0.443	0.155	(0.168)	0.288
29	2.42	6.80	0.860	0.155	(0.327)	0.706
30	2.50	7.30	0.924	0.155	(0.351)	0.769
31	2.58	8.20	1.038	0.155	(0.394)	0.883
32	2.67	5.90	0.747	0.155	(0.284)	0.592
33	2.75	2.00	0.253	(0.155)	0.096	0.157
34	2.83	1.80	0.228	(0.155)	0.087	0.141
35	2.92	1.80	0.228	(0.155)	0.087	0.141
36	3.00	0.60	0.076	(0.155)	0.029	0.047

(Loss Rate Not Used)

Sum = 100.0 Sum = 8.7

Flood volume = Effective rainfall 0.73(In)
times area 10.9(Ac.)/[(In)/(Ft.)] = 0.7(Ac.Ft)
Total soil loss = 0.33(In)
Total soil loss = 0.297(Ac.Ft)
Total rainfall = 1.05(In)
Flood volume = 28795.0 Cubic Feet
Total soil loss = 12927.9 Cubic Feet

Peak flow rate of this hydrograph = 8.930(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0							
0+ 5	0.0035	0.50	V Q				
0+10	0.0107	1.05	V Q				
0+15	0.0178	1.03	|V Q				
0+20	0.0255	1.11	|V Q				
0+25	0.0342	1.27	| V Q				
0+30	0.0439	1.41	| V Q				
0+35	0.0537	1.42	| V Q				
0+40	0.0635	1.42	| V Q				
0+45	0.0741	1.54	| V Q				
0+50	0.0840	1.43	| Q				
0+55	0.0933	1.35	| Q				
1+ 0	0.1033	1.45	| QV				
1+ 5	0.1149	1.69	| Q				
1+10	0.1278	1.87	| Q				
1+15	0.1409	1.89	| QV				
1+20	0.1534	1.82	| Q V|				
1+25	0.1670	1.97	| Q V				
1+30	0.1825	2.25	| Q |V				
1+35	0.1976	2.20	| Q |V				
1+40	0.2128	2.20	| Q | V				
1+45	0.2305	2.56	| Q V				
1+50	0.2494	2.75	| |Q V				
1+55	0.2674	2.61	| Q V				
2+ 0	0.2849	2.55	| Q V				
2+ 5	0.3030	2.62	| Q V				
2+10	0.3259	3.32	| | Q V|				
2+15	0.3572	4.54	| | Q |V				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+20	0.3863	4.23	|		|	Q	|	V	|	
|	2+25	0.4232	5.35	|		|		|	Q	V	|
|	2+30	0.4768	7.79	|		|		|		V	Q
|	2+35	0.5383	8.93	|		|		|		V	Q
|	2+40	0.5947	8.18	|		|		|		Q	V
|	2+45	0.6261	4.56	|		|	Q	|			V
|	2+50	0.6397	1.98	|		Q	|				V
|	2+55	0.6508	1.60	|		Q	|				
V|	3+ 0	0.6583	1.09	|		Q	|				
V|	3+ 5	0.6607	0.35	|	Q	|					
V|	3+10	0.6610	0.04	Q	|						
V|	3+15	0.6610	0.00	Q	|						

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post310.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.195	(0.155)	0.074	0.121
2	0.17	1.30	0.195	(0.155)	0.074	0.121
3	0.25	1.10	0.165	(0.155)	0.063	0.102
4	0.33	1.50	0.225	(0.155)	0.085	0.139
5	0.42	1.50	0.225	(0.155)	0.085	0.139
6	0.50	1.80	0.270	(0.155)	0.102	0.167
7	0.58	1.50	0.225	(0.155)	0.085	0.139
8	0.67	1.80	0.270	(0.155)	0.102	0.167
9	0.75	1.80	0.270	(0.155)	0.102	0.167
10	0.83	1.50	0.225	(0.155)	0.085	0.139
11	0.92	1.60	0.240	(0.155)	0.091	0.149
12	1.00	1.80	0.270	(0.155)	0.102	0.167
13	1.08	2.20	0.329	(0.155)	0.125	0.204
14	1.17	2.20	0.329	(0.155)	0.125	0.204
15	1.25	2.20	0.329	(0.155)	0.125	0.204
16	1.33	2.00	0.299	(0.155)	0.114	0.186
17	1.42	2.60	0.389	(0.155)	0.148	0.241
18	1.50	2.70	0.404	(0.155)	0.154	0.251
19	1.58	2.40	0.359	(0.155)	0.137	0.223
20	1.67	2.70	0.404	(0.155)	0.154	0.251
21	1.75	3.30	0.494	0.155	(0.188)	0.339
22	1.83	3.10	0.464	0.155	(0.176)	0.309
23	1.92	2.90	0.434	0.155	(0.165)	0.280
24	2.00	3.00	0.449	0.155	(0.171)	0.294
25	2.08	3.10	0.464	0.155	(0.176)	0.309
26	2.17	4.20	0.629	0.155	(0.239)	0.474
27	2.25	5.00	0.749	0.155	(0.284)	0.594
28	2.33	3.50	0.524	0.155	(0.199)	0.369
29	2.42	6.80	1.018	0.155	(0.387)	0.863
30	2.50	7.30	1.093	0.155	(0.415)	0.938
31	2.58	8.20	1.228	0.155	(0.467)	1.073
32	2.67	5.90	0.883	0.155	(0.336)	0.729
33	2.75	2.00	0.299	(0.155)	0.114	0.186
34	2.83	1.80	0.270	(0.155)	0.102	0.167
35	2.92	1.80	0.270	(0.155)	0.102	0.167
36	3.00	0.60	0.090	(0.155)	0.034	0.056

(Loss Rate Not Used)

Sum = 100.0 Sum = 10.6

Flood volume = Effective rainfall 0.89(In)
times area 10.9(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft)
Total soil loss = 0.36(In)
Total soil loss = 0.329(Ac.Ft)
Total rainfall = 1.25(In)
Flood volume = 35051.1 Cubic Feet
Total soil loss = 14320.1 Cubic Feet

Peak flow rate of this hydrograph = 10.878(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0
20.0							
0+ 5	0.0041	0.59	VQ				
0+10	0.0126	1.24	V Q				
0+15	0.0211	1.22	|VQ				
0+20	0.0301	1.32	|VQ				
0+25	0.0405	1.51	| VQ				
0+30	0.0520	1.66	| VQ				
0+35	0.0635	1.68	| Q				
0+40	0.0752	1.68	| Q				
0+45	0.0877	1.82	| QV				
0+50	0.0994	1.70	| QV				
0+55	0.1104	1.60	| Q V				
1+ 0	0.1222	1.72	| Q V				
1+ 5	0.1360	2.01	| Q V				
1+10	0.1513	2.22	| Q V				
1+15	0.1667	2.24	| Q V				
1+20	0.1815	2.15	| Q V|				
1+25	0.1976	2.33	| Q V|				
1+30	0.2159	2.66	| Q V				
1+35	0.2339	2.61	| Q |V				
1+40	0.2518	2.60	| Q | V				
1+45	0.2737	3.17	| Q | V				
1+50	0.2979	3.52	| Q | V				
1+55	0.3204	3.27	| Q | V				
2+ 0	0.3422	3.17	| Q | V				
2+ 5	0.3650	3.30	| Q | V				
2+10	0.3939	4.20	| Q | V|				
2+15	0.4330	5.68	| Q | V				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+20	0.4697	5.32	|	Q	|	V	|	
|	2+25	0.5154	6.64	|	|	Q	|	V	
|	2+30	0.5810	9.53	|	|	Q	|	V	
|	2+35	0.6560	10.88	|	|	|	Q	|	V
|	2+40	0.7248	10.00	|	|	Q	|	|	V
|	2+45	0.7632	5.57	|	|	Q	|	|	V
|	2+50	0.7794	2.37	|	Q	|	|	|	V
|	2+55	0.7925	1.90	|	Q	|	|	|	
V|	3+ 0	0.8014	1.29	|	Q	|	|	|	
V|	3+ 5	0.8043	0.42	Q	|	|	|	|	
V|	3+10	0.8046	0.05	Q	|	|	|	|	
V|	3+15	0.8047	0.01	Q	|	|	|	|	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

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Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.

Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

10.90 0.80 8.71

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 10.90 1.89 20.60

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.799(In)
 Area Averaged 100-Year Rainfall = 1.890(In)

Point rain (area averaged) = 1.890(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.890(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 10.900 69.00 0.650
 Total Area Entered = 10.90(Ac.)

RI (In/Hr)	RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
0.080	69.0	84.4	0.194	0.650	0.080	1.000	
0.080	Sum (F) =						

Area averaged mean soil loss (F) (In/Hr) = 0.080
 Minimum soil loss rate ((In/Hr)) = 0.040
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	213.048	4.921
2	0.167	426.095	5.356
3	0.250	639.143	0.617
4	0.333	852.190	0.092
		Sum = 100.000	Sum= 10.985

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.295	0.080	(0.112)	0.214
2	0.17	1.30	0.295	0.080	(0.112)	0.214
3	0.25	1.10	0.249	0.080	(0.095)	0.169
4	0.33	1.50	0.340	0.080	(0.129)	0.260
5	0.42	1.50	0.340	0.080	(0.129)	0.260
6	0.50	1.80	0.408	0.080	(0.155)	0.328
7	0.58	1.50	0.340	0.080	(0.129)	0.260
8	0.67	1.80	0.408	0.080	(0.155)	0.328
9	0.75	1.80	0.408	0.080	(0.155)	0.328
10	0.83	1.50	0.340	0.080	(0.129)	0.260
11	0.92	1.60	0.363	0.080	(0.138)	0.282
12	1.00	1.80	0.408	0.080	(0.155)	0.328
13	1.08	2.20	0.499	0.080	(0.190)	0.418
14	1.17	2.20	0.499	0.080	(0.190)	0.418
15	1.25	2.20	0.499	0.080	(0.190)	0.418
16	1.33	2.00	0.454	0.080	(0.172)	0.373
17	1.42	2.60	0.590	0.080	(0.224)	0.509
18	1.50	2.70	0.612	0.080	(0.233)	0.532
19	1.58	2.40	0.544	0.080	(0.207)	0.464
20	1.67	2.70	0.612	0.080	(0.233)	0.532
21	1.75	3.30	0.748	0.080	(0.284)	0.668
22	1.83	3.10	0.703	0.080	(0.267)	0.623
23	1.92	2.90	0.658	0.080	(0.250)	0.577
24	2.00	3.00	0.680	0.080	(0.259)	0.600
25	2.08	3.10	0.703	0.080	(0.267)	0.623
26	2.17	4.20	0.953	0.080	(0.362)	0.872
27	2.25	5.00	1.134	0.080	(0.431)	1.054
28	2.33	3.50	0.794	0.080	(0.302)	0.713
29	2.42	6.80	1.542	0.080	(0.586)	1.462
30	2.50	7.30	1.656	0.080	(0.629)	1.575
31	2.58	8.20	1.860	0.080	(0.707)	1.779
32	2.67	5.90	1.338	0.080	(0.508)	1.258
33	2.75	2.00	0.454	0.080	(0.172)	0.373
34	2.83	1.80	0.408	0.080	(0.155)	0.328
35	2.92	1.80	0.408	0.080	(0.155)	0.328
36	3.00	0.60	0.136	(0.080)	0.052	0.084

(Loss Rate Not Used)

Sum = 100.0 Sum = 19.8

Flood volume = Effective rainfall 1.65(In)
times area 10.9(Ac.)/[(In)/(Ft.)] = 1.5(Ac.Ft)
Total soil loss = 0.24(In)
Total soil loss = 0.217(Ac.Ft)
Total rainfall = 1.89(In)
Flood volume = 65324.1 Cubic Feet
Total soil loss = 9454.0 Cubic Feet

Peak flow rate of this hydrograph = 18.168(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0
20.0							
0+ 5	0.0073	1.06	V Q				
0+10	0.0224	2.20	V Q				
0+15	0.0370	2.11	V Q				
0+20	0.0531	2.34	|V Q				
0+25	0.0723	2.79	|V Q				
0+30	0.0943	3.18	| V Q				
0+35	0.1164	3.22	| V Q				
0+40	0.1387	3.23	| V Q				
0+45	0.1632	3.56	| V Q				
0+50	0.1857	3.26	| V Q				
0+55	0.2064	3.01	| VQ				
1+ 0	0.2293	3.32	| Q				
1+ 5	0.2569	4.01	| V Q				
1+10	0.2881	4.53	| V Q|				
1+15	0.3198	4.59	| VQ|				
1+20	0.3499	4.38	| QV|				
1+25	0.3830	4.80	| QV				
1+30	0.4216	5.62	| |Q				
1+35	0.4594	5.48	| Q V				
1+40	0.4971	5.48	| Q V				
1+45	0.5417	6.47	| | Q V				
1+50	0.5900	7.02	| | QV				
1+55	0.6358	6.64	| | Q V				
2+ 0	0.6805	6.49	| | Q V				
2+ 5	0.7266	6.69	| | Q V|				
2+10	0.7820	8.05	| | Q V				
2+15	0.8530	10.30	| | Q V				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

|	2+20	0.9201	9.75	|	|	Q|	V	|
|	2+25	1.0011	11.75	|	|	|	Q V	|
|	2+30	1.1121	16.12	|	|	|	V|	Q
|	2+35	1.2372	18.17	|	|	|	|	V Q
|	2+40	1.3531	16.83	|	|	|	|	Q V
|	2+45	1.4208	9.82	|	|	Q|	|	V
|	2+50	1.4521	4.55	|	Q|	|	|	V
|	2+55	1.4777	3.72	|	Q	|	|	|
V|	3+ 0	1.4943	2.41	|	Q	|	|	|
V|	3+ 5	1.4990	0.68	|	Q	|	|	|
V|	3+10	1.4996	0.08	Q	|	|	|	|
V|	3+15	1.4996	0.01	Q	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post62.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

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Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

10.90 1.09 11.88

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
10.90	2.55	27.79

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 1.090(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.090(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
10.900	69.00	0.650
Total Area Entered = 10.90(Ac.)		

RI (In/Hr)	RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
0.155	69.0	69.0	0.373	0.650	0.155	1.000	
Sum (F) =							0.155

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

 U n i t H y d r o g r a p h
 FOOTHILL S-Curve

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 Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	213.048	4.921
2	0.167	426.095	5.356
3	0.250	639.143	0.617
4	0.333	852.190	0.092
Sum = 100.000		Sum=	10.985

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.065	(0.155)	0.025	0.041
2	0.17	0.60	0.078	(0.155)	0.030	0.049
3	0.25	0.60	0.078	(0.155)	0.030	0.049
4	0.33	0.60	0.078	(0.155)	0.030	0.049
5	0.42	0.60	0.078	(0.155)	0.030	0.049
6	0.50	0.70	0.092	(0.155)	0.035	0.057
7	0.58	0.70	0.092	(0.155)	0.035	0.057
8	0.67	0.70	0.092	(0.155)	0.035	0.057
9	0.75	0.70	0.092	(0.155)	0.035	0.057
10	0.83	0.70	0.092	(0.155)	0.035	0.057
11	0.92	0.70	0.092	(0.155)	0.035	0.057
12	1.00	0.80	0.105	(0.155)	0.040	0.065
13	1.08	0.80	0.105	(0.155)	0.040	0.065
14	1.17	0.80	0.105	(0.155)	0.040	0.065
15	1.25	0.80	0.105	(0.155)	0.040	0.065
16	1.33	0.80	0.105	(0.155)	0.040	0.065
17	1.42	0.80	0.105	(0.155)	0.040	0.065
18	1.50	0.80	0.105	(0.155)	0.040	0.065
19	1.58	0.80	0.105	(0.155)	0.040	0.065
20	1.67	0.80	0.105	(0.155)	0.040	0.065
21	1.75	0.80	0.105	(0.155)	0.040	0.065
22	1.83	0.80	0.105	(0.155)	0.040	0.065
23	1.92	0.80	0.105	(0.155)	0.040	0.065
24	2.00	0.90	0.118	(0.155)	0.045	0.073
25	2.08	0.80	0.105	(0.155)	0.040	0.065
26	2.17	0.90	0.118	(0.155)	0.045	0.073
27	2.25	0.90	0.118	(0.155)	0.045	0.073
28	2.33	0.90	0.118	(0.155)	0.045	0.073
29	2.42	0.90	0.118	(0.155)	0.045	0.073
30	2.50	0.90	0.118	(0.155)	0.045	0.073
31	2.58	0.90	0.118	(0.155)	0.045	0.073
32	2.67	0.90	0.118	(0.155)	0.045	0.073
33	2.75	1.00	0.131	(0.155)	0.050	0.081
34	2.83	1.00	0.131	(0.155)	0.050	0.081
35	2.92	1.00	0.131	(0.155)	0.050	0.081
36	3.00	1.00	0.131	(0.155)	0.050	0.081
37	3.08	1.00	0.131	(0.155)	0.050	0.081
38	3.17	1.10	0.144	(0.155)	0.055	0.089
39	3.25	1.10	0.144	(0.155)	0.055	0.089
40	3.33	1.10	0.144	(0.155)	0.055	0.089
41	3.42	1.20	0.157	(0.155)	0.060	0.097
42	3.50	1.30	0.170	(0.155)	0.065	0.105
43	3.58	1.40	0.183	(0.155)	0.070	0.114
44	3.67	1.40	0.183	(0.155)	0.070	0.114
45	3.75	1.50	0.196	(0.155)	0.075	0.122
46	3.83	1.50	0.196	(0.155)	0.075	0.122
47	3.92	1.60	0.209	(0.155)	0.080	0.130
48	4.00	1.60	0.209	(0.155)	0.080	0.130
49	4.08	1.70	0.222	(0.155)	0.084	0.138
50	4.17	1.80	0.235	(0.155)	0.089	0.146
51	4.25	1.90	0.249	(0.155)	0.094	0.154
52	4.33	2.00	0.262	(0.155)	0.099	0.162
53	4.42	2.10	0.275	(0.155)	0.104	0.170
54	4.50	2.10	0.275	(0.155)	0.104	0.170
55	4.58	2.20	0.288	(0.155)	0.109	0.178
56	4.67	2.30	0.301	(0.155)	0.114	0.187
57	4.75	2.40	0.314	(0.155)	0.119	0.195
58	4.83	2.40	0.314	(0.155)	0.119	0.195

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

59	4.92	2.50	0.327	(0.155)	0.124	0.203
60	5.00	2.60	0.340	(0.155)	0.129	0.211
61	5.08	3.10	0.405	(0.155)	0.154	0.251
62	5.17	3.60	0.471	0.155	(0.179)	0.316
63	5.25	3.90	0.510	0.155	(0.194)	0.355
64	5.33	4.20	0.549	0.155	(0.209)	0.395
65	5.42	4.70	0.615	0.155	(0.234)	0.460
66	5.50	5.60	0.732	0.155	(0.278)	0.578
67	5.58	1.90	0.249	(0.155)	0.094	0.154
68	5.67	0.90	0.118	(0.155)	0.045	0.073
69	5.75	0.60	0.078	(0.155)	0.030	0.049
70	5.83	0.50	0.065	(0.155)	0.025	0.041
71	5.92	0.30	0.039	(0.155)	0.015	0.024
72	6.00	0.20	0.026	(0.155)	0.010	0.016

(Loss Rate Not Used)

Sum = 100.0 Sum = 8.4

Flood volume = Effective rainfall 0.70(In)
 times area 10.9(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
 Total soil loss = 0.39(In)
 Total soil loss = 0.352(Ac.Ft)
 Total rainfall = 1.09(In)
 Flood volume = 27793.1 Cubic Feet
 Total soil loss = 15333.3 Cubic Feet

 Peak flow rate of this hydrograph = 5.586(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

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 Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0014	0.20	Q			
0+10	0.0045	0.46	VQ			
0+15	0.0081	0.53	V Q			
0+20	0.0118	0.53	V Q	|	|	|
0+25	0.0155	0.53	V Q	|	|	|
0+30	0.0195	0.57	|VQ	|	|	|
0+35	0.0237	0.62	|VQ	|	|	|
0+40	0.0280	0.62	|VQ	|	|	|
0+45	0.0323	0.62	| Q	|	|	|

0+50	0.0366	0.62	| Q	|	|	|
0+55	0.0409	0.62	| Q	|	|	|
1+ 0	0.0455	0.66	| Q	|	|	|
1+ 5	0.0503	0.71	| QV	|	|	|
1+10	0.0552	0.71	| QV	|	|	|
1+15	0.0602	0.71	| QV	|	|	|
1+20	0.0651	0.71	| Q V	|	|	|
1+25	0.0700	0.71	| Q V	|	|	|
1+30	0.0749	0.71	| Q V	|	|	|
1+35	0.0798	0.71	| Q V	|	|	|
1+40	0.0847	0.71	| Q V	|	|	|
1+45	0.0896	0.71	| Q V	|	|	|
1+50	0.0945	0.71	| Q V	|	|	|
1+55	0.0994	0.71	| Q V	|	|	|
2+ 0	0.1046	0.75	| Q V	|	|	|
2+ 5	0.1098	0.76	| Q V	|	|	|
2+10	0.1151	0.76	| Q V	|	|	|
2+15	0.1205	0.80	| Q V	|	|	|
2+20	0.1261	0.80	| Q V	|	|	|
2+25	0.1316	0.80	| Q V	|	|	|
2+30	0.1371	0.80	| Q V	|	|	|
2+35	0.1426	0.80	| Q V	|	|	|
2+40	0.1482	0.80	| Q V	|	|	|
2+45	0.1540	0.84	| Q V	|	|	|
2+50	0.1601	0.89	| Q V	|	|	|
2+55	0.1662	0.89	| Q V	|	|	|
3+ 0	0.1723	0.89	| Q V	|	|	|
3+ 5	0.1785	0.89	| Q	|V	|	|
3+10	0.1849	0.93	| Q	|V	|	|
3+15	0.1916	0.97	| Q	| V	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	3+20	0.1983	0.98	| Q	| V	|	|
V|	3+25	0.2054	1.02	| Q	| V	|	|
V|	3+30	0.2130	1.10	| Q	| V	|	|
V|	3+35	0.2212	1.19	| Q	| V	|	|
V|	3+40	0.2297	1.24	| Q	| V	|	|
V|	3+45	0.2386	1.29	| Q	| V	|	|
V|	3+50	0.2478	1.33	| Q	| V	|	|
V|	3+55	0.2572	1.38	| Q	| V	|	|
V|	4+ 0	0.2670	1.42	| Q	| V	|	|
V|	4+ 5	0.2771	1.47	| Q	| V	|	|
V|	4+10	0.2878	1.55	| Q	| V	|	|
V|	4+15	0.2991	1.64	| Q	| V	|	|
V|	4+20	0.3110	1.73	| Q	| V	|	|
V|	4+25	0.3235	1.82	| Q	| V	|	|
V|	4+30	0.3363	1.87	| Q	| V	|	|
V|	4+35	0.3495	1.91	| Q	| V	|	|
V|	4+40	0.3632	1.99	| Q	| V	|	|
V|	4+45	0.3776	2.08	| Q	| V	|	|
V|	4+50	0.3922	2.13	| Q	| V	|	|
V|	4+55	0.4072	2.18	| Q	| V	|	|
V|	5+ 0	0.4228	2.26	| Q	| V	|	|
V|	5+ 5	0.4401	2.51	| Q	| V	|	|
V|	5+10	0.4611	3.05	| Q	| V	|	|
V|	5+15	0.4861	3.62	| Q	| V	|	|
V|	5+20	0.5141	4.07	| Q	| V	|	|
V|	5+25	0.5459	4.63	| Q	| V	|	|
V|	5+30	0.5844	5.59	| Q	| V	|	|
V|	5+35	0.6131	4.17	| Q	| V	|	|
V|	5+40	0.6241	1.58	| Q	|	|	|
V|	5+45	0.6294	0.78	| Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	5+50	0.6330	0.52	| Q	|	|	|
V|	5+55	0.6356	0.37	| Q	|	|	|
V|	6+ 0	0.6372	0.24	Q	|	|	|
V	6+ 5	0.6379	0.11	Q			
V	6+10	0.6380	0.01	Q			
V	6+15	0.6380	0.00	Q			

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post65.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

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Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.086	(0.155)	0.033	0.053
2	0.17	0.60	0.103	(0.155)	0.039	0.064
3	0.25	0.60	0.103	(0.155)	0.039	0.064
4	0.33	0.60	0.103	(0.155)	0.039	0.064
5	0.42	0.60	0.103	(0.155)	0.039	0.064
6	0.50	0.70	0.120	(0.155)	0.046	0.075
7	0.58	0.70	0.120	(0.155)	0.046	0.075
8	0.67	0.70	0.120	(0.155)	0.046	0.075
9	0.75	0.70	0.120	(0.155)	0.046	0.075
10	0.83	0.70	0.120	(0.155)	0.046	0.075
11	0.92	0.70	0.120	(0.155)	0.046	0.075
12	1.00	0.80	0.137	(0.155)	0.052	0.085
13	1.08	0.80	0.137	(0.155)	0.052	0.085
14	1.17	0.80	0.137	(0.155)	0.052	0.085
15	1.25	0.80	0.137	(0.155)	0.052	0.085
16	1.33	0.80	0.137	(0.155)	0.052	0.085
17	1.42	0.80	0.137	(0.155)	0.052	0.085
18	1.50	0.80	0.137	(0.155)	0.052	0.085
19	1.58	0.80	0.137	(0.155)	0.052	0.085
20	1.67	0.80	0.137	(0.155)	0.052	0.085
21	1.75	0.80	0.137	(0.155)	0.052	0.085
22	1.83	0.80	0.137	(0.155)	0.052	0.085
23	1.92	0.80	0.137	(0.155)	0.052	0.085
24	2.00	0.90	0.155	(0.155)	0.059	0.096
25	2.08	0.80	0.137	(0.155)	0.052	0.085
26	2.17	0.90	0.155	(0.155)	0.059	0.096
27	2.25	0.90	0.155	(0.155)	0.059	0.096
28	2.33	0.90	0.155	(0.155)	0.059	0.096
29	2.42	0.90	0.155	(0.155)	0.059	0.096
30	2.50	0.90	0.155	(0.155)	0.059	0.096
31	2.58	0.90	0.155	(0.155)	0.059	0.096
32	2.67	0.90	0.155	(0.155)	0.059	0.096
33	2.75	1.00	0.172	(0.155)	0.065	0.107
34	2.83	1.00	0.172	(0.155)	0.065	0.107
35	2.92	1.00	0.172	(0.155)	0.065	0.107
36	3.00	1.00	0.172	(0.155)	0.065	0.107
37	3.08	1.00	0.172	(0.155)	0.065	0.107
38	3.17	1.10	0.189	(0.155)	0.072	0.117
39	3.25	1.10	0.189	(0.155)	0.072	0.117
40	3.33	1.10	0.189	(0.155)	0.072	0.117
41	3.42	1.20	0.206	(0.155)	0.078	0.128
42	3.50	1.30	0.223	(0.155)	0.085	0.138
43	3.58	1.40	0.241	(0.155)	0.091	0.149
44	3.67	1.40	0.241	(0.155)	0.091	0.149
45	3.75	1.50	0.258	(0.155)	0.098	0.160
46	3.83	1.50	0.258	(0.155)	0.098	0.160
47	3.92	1.60	0.275	(0.155)	0.104	0.170
48	4.00	1.60	0.275	(0.155)	0.104	0.170
49	4.08	1.70	0.292	(0.155)	0.111	0.181
50	4.17	1.80	0.309	(0.155)	0.118	0.192
51	4.25	1.90	0.326	(0.155)	0.124	0.202
52	4.33	2.00	0.344	(0.155)	0.131	0.213
53	4.42	2.10	0.361	(0.155)	0.137	0.224
54	4.50	2.10	0.361	(0.155)	0.137	0.224
55	4.58	2.20	0.378	(0.155)	0.144	0.234
56	4.67	2.30	0.395	(0.155)	0.150	0.245
57	4.75	2.40	0.412	0.155	(0.157)	0.258
58	4.83	2.40	0.412	0.155	(0.157)	0.258

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

59	4.92	2.50	0.430	0.155	(0.163)	0.275
60	5.00	2.60	0.447	0.155	(0.170)	0.292
61	5.08	3.10	0.533	0.155	(0.202)	0.378
62	5.17	3.60	0.619	0.155	(0.235)	0.464
63	5.25	3.90	0.670	0.155	(0.255)	0.515
64	5.33	4.20	0.722	0.155	(0.274)	0.567
65	5.42	4.70	0.808	0.155	(0.307)	0.653
66	5.50	5.60	0.962	0.155	(0.366)	0.808
67	5.58	1.90	0.326	(0.155)	0.124	0.202
68	5.67	0.90	0.155	(0.155)	0.059	0.096
69	5.75	0.60	0.103	(0.155)	0.039	0.064
70	5.83	0.50	0.086	(0.155)	0.033	0.053
71	5.92	0.30	0.052	(0.155)	0.020	0.032
72	6.00	0.20	0.034	(0.155)	0.013	0.021

(Loss Rate Not Used)

Sum = 100.0 Sum = 11.4

Flood volume = Effective rainfall 0.95(In)
times area 10.9(Ac.)/[(In)/(Ft.)] = 0.9(Ac.Ft)
Total soil loss = 0.48(In)
Total soil loss = 0.438(Ac.Ft)
Total rainfall = 1.43(In)
Flood volume = 37561.1 Cubic Feet
Total soil loss = 19095.4 Cubic Feet

Peak flow rate of this hydrograph = 7.871(CFS)

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6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

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Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

0+ 5	0.0018	0.26	VQ			
0+10	0.0059	0.60	V Q			
0+15	0.0107	0.69	V Q			
0+20	0.0155	0.70	V Q	|	|	|
0+25	0.0204	0.70	V Q	|	|	|
0+30	0.0256	0.75	|V Q	|	|	|
0+35	0.0312	0.81	|V Q	|	|	|
0+40	0.0368	0.82	|V Q	|	|	|
0+45	0.0424	0.82	|V Q	|	|	|

0+50	0.0481	0.82	| VQ	|	|	|
0+55	0.0537	0.82	| VQ	|	|	|
1+ 0	0.0597	0.87	| VQ	|	|	|
1+ 5	0.0661	0.93	| Q	|	|	|
1+10	0.0726	0.94	| Q	|	|	|
1+15	0.0790	0.94	| Q	|	|	|
1+20	0.0855	0.94	| Q	|	|	|
1+25	0.0919	0.94	| QV	|	|	|
1+30	0.0984	0.94	| QV	|	|	|
1+35	0.1048	0.94	| QV	|	|	|
1+40	0.1113	0.94	| Q V	|	|	|
1+45	0.1177	0.94	| Q V	|	|	|
1+50	0.1242	0.94	| Q V	|	|	|
1+55	0.1306	0.94	| Q V	|	|	|
2+ 0	0.1375	0.99	| Q V	|	|	|
2+ 5	0.1443	0.99	| Q V	|	|	|
2+10	0.1512	1.00	| Q V	|	|	|
2+15	0.1584	1.05	| Q V	|	|	|
2+20	0.1656	1.05	| Q V	|	|	|
2+25	0.1729	1.05	| Q V	|	|	|
2+30	0.1801	1.05	| Q V	|	|	|
2+35	0.1874	1.05	| Q V	|	|	|
2+40	0.1946	1.05	| Q V|	|	|	|
2+45	0.2023	1.11	| Q V|	|	|	|
2+50	0.2103	1.16	| Q V|	|	|	|
2+55	0.2183	1.17	| Q V	|	|	|
3+ 0	0.2264	1.17	| Q V	|	|	|
3+ 5	0.2345	1.17	| Q V	|	|	|
3+10	0.2429	1.22	| Q |V	|	|	|
3+15	0.2517	1.28	| Q |V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	3+20	0.2606	1.29	|	Q	|	V	|	|	|
V|	3+25	0.2698	1.34	|	Q	|	V	|	|	|
V|	3+30	0.2798	1.45	|	Q	|	V	|	|	|
V|	3+35	0.2906	1.57	|	Q	|	V	|	|	|
V|	3+40	0.3018	1.63	|	Q	|	V	|	|	|
V|	3+45	0.3134	1.69	|	Q	|	V	|	|	|
V|	3+50	0.3255	1.75	|	Q	|	V	|	|	|
V|	3+55	0.3379	1.81	|	Q	|	V	|	|	|
V|	4+ 0	0.3508	1.87	|	Q	|	V	|	|	|
V|	4+ 5	0.3641	1.92	|	Q	|	V	|	|	|
V|	4+10	0.3781	2.04	|	Q	|	V	|	|	|
V|	4+15	0.3929	2.15	|	Q	|	V	|	|	|
V|	4+20	0.4085	2.27	|	Q	|	V	|	|	|
V|	4+25	0.4249	2.39	|	Q	|	V	|	|	|
V|	4+30	0.4418	2.45	|	Q	|	V	|	|	|
V|	4+35	0.4591	2.51	|	Q	|	V	|	|	|
V|	4+40	0.4772	2.62	|	Q	|	V	|	|	|
V|	4+45	0.4961	2.75	|	Q	|	V	|	|	|
V|	4+50	0.5155	2.82	|	|Q	|	V	|	|	|
V|	4+55	0.5356	2.92	|	|Q	|	V	|	|	|
V|	5+ 0	0.5569	3.09	|	|	Q	|	V	|	|
V|	5+ 5	0.5818	3.62	|	|	Q	|	V	|	|
V|	5+10	0.6129	4.51	|	|	Q	|	V	|	|
V|	5+15	0.6493	5.28	|	|	|Q	|	V	|	|
V|	5+20	0.6898	5.87	|	|	|	Q	|	V	|
V|	5+25	0.7353	6.61	|	|	|	Q	|	V	|
V|	5+30	0.7895	7.87	|	|	|	|	Q	|	V
V|	5+35	0.8293	5.78	|	|	|	Q	|	|	V
V|	5+40	0.8439	2.12	|	Q	|	|	|	|	|
V|	5+45	0.8510	1.03	|	Q	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	5+50	0.8557	0.68	| Q	|	|	|
V|	5+55	0.8590	0.49	| Q	|	|	|
V|	6+ 0	0.8612	0.31	| Q	|	|	|
V	6+ 5	0.8622	0.14	Q			
V	6+10	0.8623	0.02	Q			
V	6+15	0.8623	0.00	Q			
V							

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post610.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.

Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.101	(0.155)	0.039	0.063
2	0.17	0.60	0.122	(0.155)	0.046	0.075
3	0.25	0.60	0.122	(0.155)	0.046	0.075
4	0.33	0.60	0.122	(0.155)	0.046	0.075
5	0.42	0.60	0.122	(0.155)	0.046	0.075
6	0.50	0.70	0.142	(0.155)	0.054	0.088
7	0.58	0.70	0.142	(0.155)	0.054	0.088
8	0.67	0.70	0.142	(0.155)	0.054	0.088
9	0.75	0.70	0.142	(0.155)	0.054	0.088
10	0.83	0.70	0.142	(0.155)	0.054	0.088
11	0.92	0.70	0.142	(0.155)	0.054	0.088
12	1.00	0.80	0.162	(0.155)	0.062	0.101
13	1.08	0.80	0.162	(0.155)	0.062	0.101
14	1.17	0.80	0.162	(0.155)	0.062	0.101
15	1.25	0.80	0.162	(0.155)	0.062	0.101
16	1.33	0.80	0.162	(0.155)	0.062	0.101
17	1.42	0.80	0.162	(0.155)	0.062	0.101
18	1.50	0.80	0.162	(0.155)	0.062	0.101
19	1.58	0.80	0.162	(0.155)	0.062	0.101
20	1.67	0.80	0.162	(0.155)	0.062	0.101
21	1.75	0.80	0.162	(0.155)	0.062	0.101
22	1.83	0.80	0.162	(0.155)	0.062	0.101
23	1.92	0.80	0.162	(0.155)	0.062	0.101
24	2.00	0.90	0.183	(0.155)	0.069	0.113
25	2.08	0.80	0.162	(0.155)	0.062	0.101
26	2.17	0.90	0.183	(0.155)	0.069	0.113
27	2.25	0.90	0.183	(0.155)	0.069	0.113
28	2.33	0.90	0.183	(0.155)	0.069	0.113
29	2.42	0.90	0.183	(0.155)	0.069	0.113
30	2.50	0.90	0.183	(0.155)	0.069	0.113
31	2.58	0.90	0.183	(0.155)	0.069	0.113
32	2.67	0.90	0.183	(0.155)	0.069	0.113
33	2.75	1.00	0.203	(0.155)	0.077	0.126
34	2.83	1.00	0.203	(0.155)	0.077	0.126
35	2.92	1.00	0.203	(0.155)	0.077	0.126
36	3.00	1.00	0.203	(0.155)	0.077	0.126
37	3.08	1.00	0.203	(0.155)	0.077	0.126
38	3.17	1.10	0.223	(0.155)	0.085	0.138
39	3.25	1.10	0.223	(0.155)	0.085	0.138
40	3.33	1.10	0.223	(0.155)	0.085	0.138
41	3.42	1.20	0.243	(0.155)	0.093	0.151
42	3.50	1.30	0.264	(0.155)	0.100	0.164
43	3.58	1.40	0.284	(0.155)	0.108	0.176
44	3.67	1.40	0.284	(0.155)	0.108	0.176
45	3.75	1.50	0.304	(0.155)	0.116	0.189
46	3.83	1.50	0.304	(0.155)	0.116	0.189
47	3.92	1.60	0.325	(0.155)	0.123	0.201
48	4.00	1.60	0.325	(0.155)	0.123	0.201
49	4.08	1.70	0.345	(0.155)	0.131	0.214
50	4.17	1.80	0.365	(0.155)	0.139	0.226
51	4.25	1.90	0.385	(0.155)	0.146	0.239
52	4.33	2.00	0.406	(0.155)	0.154	0.252
53	4.42	2.10	0.426	0.155	(0.162)	0.271
54	4.50	2.10	0.426	0.155	(0.162)	0.271
55	4.58	2.20	0.446	0.155	(0.170)	0.292
56	4.67	2.30	0.467	0.155	(0.177)	0.312
57	4.75	2.40	0.487	0.155	(0.185)	0.332
58	4.83	2.40	0.487	0.155	(0.185)	0.332

59	4.92	2.50	0.507	0.155	(0.193)	0.352
60	5.00	2.60	0.527	0.155	(0.200)	0.373
61	5.08	3.10	0.629	0.155	(0.239)	0.474
62	5.17	3.60	0.730	0.155	(0.278)	0.576
63	5.25	3.90	0.791	0.155	(0.301)	0.636
64	5.33	4.20	0.852	0.155	(0.324)	0.697
65	5.42	4.70	0.953	0.155	(0.362)	0.799
66	5.50	5.60	1.136	0.155	(0.432)	0.981
67	5.58	1.90	0.385	(0.155)	0.146	0.239
68	5.67	0.90	0.183	(0.155)	0.069	0.113
69	5.75	0.60	0.122	(0.155)	0.046	0.075
70	5.83	0.50	0.101	(0.155)	0.039	0.063
71	5.92	0.30	0.061	(0.155)	0.023	0.038
72	6.00	0.20	0.041	(0.155)	0.015	0.025

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.8

Flood volume = Effective rainfall 1.15(In)
 times area 10.9(Ac.)/[(In)/(Ft.)] = 1.0(Ac.Ft)
 Total soil loss = 0.54(In)
 Total soil loss = 0.492(Ac.Ft)
 Total rainfall = 1.69(In)
 Flood volume = 45439.1 Cubic Feet
 Total soil loss = 21452.5 Cubic Feet

 Peak flow rate of this hydrograph = 9.601(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

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 Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

0+ 5	0.0021	0.31	VQ			
0+10	0.0070	0.71	V Q			
0+15	0.0126	0.81	V Q			
0+20	0.0183	0.83	V Q	|	|	|
0+25	0.0240	0.83	V Q	|	|	|
0+30	0.0302	0.89	|V Q	|	|	|
0+35	0.0368	0.96	|V Q	|	|	|
0+40	0.0434	0.97	|V Q	|	|	|
0+45	0.0501	0.97	|V Q	|	|	|

0+50	0.0568	0.97	VQ			
0+55	0.0634	0.97	VQ			
1+ 0	0.0705	1.03	V Q			
1+ 5	0.0781	1.10	V Q			
1+10	0.0857	1.10	VQ			
1+15	0.0933	1.11	VQ			
1+20	0.1009	1.11	VQ			
1+25	0.1085	1.11	Q			
1+30	0.1162	1.11	Q			
1+35	0.1238	1.11	Q			
1+40	0.1314	1.11	QV			
1+45	0.1390	1.11	QV			
1+50	0.1466	1.11	QV			
1+55	0.1542	1.11	QV			
2+ 0	0.1623	1.17	Q V			
2+ 5	0.1704	1.17	Q V			
2+10	0.1785	1.18	Q V			
2+15	0.1870	1.24	Q V			
2+20	0.1955	1.24	Q V			
2+25	0.2041	1.24	Q V			
2+30	0.2127	1.24	Q V			
2+35	0.2212	1.24	Q V			
2+40	0.2298	1.24	Q V			
2+45	0.2388	1.31	Q V			
2+50	0.2483	1.37	Q V			
2+55	0.2578	1.38	Q V			
3+ 0	0.2673	1.38	Q V			
3+ 5	0.2768	1.38	Q V			
3+10	0.2868	1.44	Q V			
3+15	0.2972	1.51	Q V			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	3+20	0.3076	1.52	|	Q	|V	|	|						
|	3+25	0.3185	1.58	|	Q	|	V	|						
|	3+30	0.3303	1.71	|	Q	|	V	|						
|	3+35	0.3431	1.85	|	Q	|	V	|						
|	3+40	0.3563	1.93	|	Q	|	V	|						
|	3+45	0.3701	2.00	|	Q	|	V	|						
|	3+50	0.3843	2.06	|	Q	|	V	|						
|	3+55	0.3990	2.13	|	Q	|	V	|						
|	4+ 0	0.4142	2.20	|	Q	|	V	|						
|	4+ 5	0.4298	2.27	|	Q|		V	|						
|	4+10	0.4464	2.40	|	Q|		V	|						
|	4+15	0.4639	2.54	|	Q		V	|						
|	4+20	0.4823	2.68	|	Q		V	|						
|	4+25	0.5020	2.85	|	|Q		V|	|						
|	4+30	0.5224	2.97	|	|Q		V	|						
|	4+35	0.5436	3.08	|	|	Q	V	|						
|	4+40	0.5663	3.29	|	|	Q	|V	|						
|	4+45	0.5904	3.51	|	|	Q	|	V	|					
|	4+50	0.6155	3.63	|	|	Q	|	V	|					
|	4+55	0.6413	3.75	|	|	Q	|	V	|					
|	5+ 0	0.6686	3.96	|	|	Q	|	V	|					
|	5+ 5	0.7001	4.58	|	|		Q	|	V	|				
|	5+10	0.7389	5.64	|	|		|	Q	V	|				
|	5+15	0.7840	6.54	|	|		|		Q	V	|			
|	5+20	0.8339	7.24	|	|		|		Q	|V	|			
|	5+25	0.8898	8.12	|	|		|			|	Q	V	|	
|	5+30	0.9559	9.60	|	|		|			|		V	Q	|
|	5+35	1.0041	6.99	|	|		|		Q	|			V	|
|	5+40	1.0214	2.52	|		Q	|			|				|
V|	5+45	1.0298	1.22	|	Q	|				|				|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	5+50	1.0353	0.81	| Q	|	|	|
V|	5+55	1.0393	0.58	| Q	|	|	|
V|	6+ 0	1.0419	0.37	|Q	|	|	|
V	6+ 5	1.0430	0.16	Q			
V	6+10	1.0431	0.02	Q			
V	6+15	1.0431	0.00	Q			
V							

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post6100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

10.90 1.09 11.88

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 10.90 2.55 27.79

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.090(In)
 Area Averaged 100-Year Rainfall = 2.550(In)

Point rain (area averaged) = 2.550(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.550(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 10.900 69.00 0.650
 Total Area Entered = 10.90(Ac.)

RI (In/Hr)	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	84.4	0.194	0.650	0.080	1.000	
0.080						Sum (F) =
0.080						

Area averaged mean soil loss (F) (In/Hr) = 0.080
 Minimum soil loss rate ((In/Hr)) = 0.040
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	213.048	4.921
2	0.167	426.095	5.356
3	0.250	639.143	0.617
4	0.333	852.190	0.092
		Sum = 100.000	Sum= 10.985

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.153	(0.080)	0.058	0.095
2	0.17	0.60	0.184	(0.080)	0.070	0.114
3	0.25	0.60	0.184	(0.080)	0.070	0.114
4	0.33	0.60	0.184	(0.080)	0.070	0.114
5	0.42	0.60	0.184	(0.080)	0.070	0.114
6	0.50	0.70	0.214	0.080	(0.081)	0.134
7	0.58	0.70	0.214	0.080	(0.081)	0.134
8	0.67	0.70	0.214	0.080	(0.081)	0.134
9	0.75	0.70	0.214	0.080	(0.081)	0.134
10	0.83	0.70	0.214	0.080	(0.081)	0.134
11	0.92	0.70	0.214	0.080	(0.081)	0.134
12	1.00	0.80	0.245	0.080	(0.093)	0.164
13	1.08	0.80	0.245	0.080	(0.093)	0.164
14	1.17	0.80	0.245	0.080	(0.093)	0.164
15	1.25	0.80	0.245	0.080	(0.093)	0.164
16	1.33	0.80	0.245	0.080	(0.093)	0.164
17	1.42	0.80	0.245	0.080	(0.093)	0.164
18	1.50	0.80	0.245	0.080	(0.093)	0.164
19	1.58	0.80	0.245	0.080	(0.093)	0.164
20	1.67	0.80	0.245	0.080	(0.093)	0.164
21	1.75	0.80	0.245	0.080	(0.093)	0.164
22	1.83	0.80	0.245	0.080	(0.093)	0.164
23	1.92	0.80	0.245	0.080	(0.093)	0.164
24	2.00	0.90	0.275	0.080	(0.105)	0.195
25	2.08	0.80	0.245	0.080	(0.093)	0.164
26	2.17	0.90	0.275	0.080	(0.105)	0.195
27	2.25	0.90	0.275	0.080	(0.105)	0.195
28	2.33	0.90	0.275	0.080	(0.105)	0.195
29	2.42	0.90	0.275	0.080	(0.105)	0.195
30	2.50	0.90	0.275	0.080	(0.105)	0.195
31	2.58	0.90	0.275	0.080	(0.105)	0.195
32	2.67	0.90	0.275	0.080	(0.105)	0.195
33	2.75	1.00	0.306	0.080	(0.116)	0.226
34	2.83	1.00	0.306	0.080	(0.116)	0.226
35	2.92	1.00	0.306	0.080	(0.116)	0.226
36	3.00	1.00	0.306	0.080	(0.116)	0.226
37	3.08	1.00	0.306	0.080	(0.116)	0.226
38	3.17	1.10	0.337	0.080	(0.128)	0.256
39	3.25	1.10	0.337	0.080	(0.128)	0.256
40	3.33	1.10	0.337	0.080	(0.128)	0.256
41	3.42	1.20	0.367	0.080	(0.140)	0.287
42	3.50	1.30	0.398	0.080	(0.151)	0.317
43	3.58	1.40	0.428	0.080	(0.163)	0.348
44	3.67	1.40	0.428	0.080	(0.163)	0.348
45	3.75	1.50	0.459	0.080	(0.174)	0.379
46	3.83	1.50	0.459	0.080	(0.174)	0.379
47	3.92	1.60	0.490	0.080	(0.186)	0.409
48	4.00	1.60	0.490	0.080	(0.186)	0.409
49	4.08	1.70	0.520	0.080	(0.198)	0.440
50	4.17	1.80	0.551	0.080	(0.209)	0.470
51	4.25	1.90	0.581	0.080	(0.221)	0.501
52	4.33	2.00	0.612	0.080	(0.233)	0.532
53	4.42	2.10	0.643	0.080	(0.244)	0.562
54	4.50	2.10	0.643	0.080	(0.244)	0.562
55	4.58	2.20	0.673	0.080	(0.256)	0.593
56	4.67	2.30	0.704	0.080	(0.267)	0.623
57	4.75	2.40	0.734	0.080	(0.279)	0.654
58	4.83	2.40	0.734	0.080	(0.279)	0.654

59	4.92	2.50	0.765	0.080	(0.291)	0.685
60	5.00	2.60	0.796	0.080	(0.302)	0.715
61	5.08	3.10	0.949	0.080	(0.360)	0.868
62	5.17	3.60	1.102	0.080	(0.419)	1.021
63	5.25	3.90	1.193	0.080	(0.453)	1.113
64	5.33	4.20	1.285	0.080	(0.488)	1.205
65	5.42	4.70	1.438	0.080	(0.546)	1.358
66	5.50	5.60	1.714	0.080	(0.651)	1.633
67	5.58	1.90	0.581	0.080	(0.221)	0.501
68	5.67	0.90	0.275	0.080	(0.105)	0.195
69	5.75	0.60	0.184	(0.080)	0.070	0.114
70	5.83	0.50	0.153	(0.080)	0.058	0.095
71	5.92	0.30	0.092	(0.080)	0.035	0.057
72	6.00	0.20	0.061	(0.080)	0.023	0.038

(Loss Rate Not Used)

Sum = 100.0 Sum = 25.0

Flood volume = Effective rainfall 2.08(In)
 times area 10.9(Ac.)/[(In)/(Ft.)] = 1.9(Ac.Ft)
 Total soil loss = 0.47(In)
 Total soil loss = 0.423(Ac.Ft)
 Total rainfall = 2.55(In)
 Flood volume = 82456.5 Cubic Feet
 Total soil loss = 18435.5 Cubic Feet

 Peak flow rate of this hydrograph = 16.161(CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 5.0 10.0 15.0
 20.0

0+ 5	0.0032	0.47	Q	|	|	|
0+10	0.0106	1.07	V Q	|	|	|
0+15	0.0190	1.23	V Q	|	|	|
0+20	0.0276	1.25	V Q	|	|	|
0+25	0.0363	1.25	V Q	|	|	|
0+30	0.0456	1.35	V Q	|	|	|
0+35	0.0556	1.46	|VQ	|	|	|
0+40	0.0657	1.47	|VQ	|	|	|
0+45	0.0758	1.47	|VQ	|	|	|

0+50	0.0859	1.47	|VQ	|	|	|
0+55	0.0961	1.47	| Q	|	|	|
1+ 0	0.1072	1.62	| VQ	|	|	|
1+ 5	0.1195	1.78	| VQ	|	|	|
1+10	0.1319	1.80	| VQ	|	|	|
1+15	0.1444	1.81	| Q	|	|	|
1+20	0.1568	1.81	| Q	|	|	|
1+25	0.1693	1.81	| Q	|	|	|
1+30	0.1817	1.81	| Q	|	|	|
1+35	0.1941	1.81	| QV	|	|	|
1+40	0.2066	1.81	| QV	|	|	|
1+45	0.2190	1.81	| QV	|	|	|
1+50	0.2315	1.81	| QV	|	|	|
1+55	0.2439	1.81	| Q V	|	|	|
2+ 0	0.2574	1.96	| Q V	|	|	|
2+ 5	0.2709	1.97	| Q V	|	|	|
2+10	0.2846	1.98	| Q V	|	|	|
2+15	0.2992	2.12	| Q V	|	|	|
2+20	0.3139	2.14	| Q V	|	|	|
2+25	0.3287	2.14	| Q V	|	|	|
2+30	0.3434	2.14	| Q V	|	|	|
2+35	0.3582	2.14	| Q V	|	|	|
2+40	0.3729	2.14	| Q V	|	|	|
2+45	0.3887	2.29	| Q V	|	|	|
2+50	0.4057	2.46	| Q V	|	|	|
2+55	0.4227	2.48	| Q V	|	|	|
3+ 0	0.4398	2.48	| Q V|	|	|	|
3+ 5	0.4569	2.48	| Q V|	|	|	|
3+10	0.4750	2.63	| Q V	|	|	|
3+15	0.4942	2.79	| Q V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

3+20	0.5136	2.81	|	Q	V	|	|
3+25	0.5340	2.97	|	Q	|V	|	|
3+30	0.5566	3.28	|	Q	|V	|	|
3+35	0.5815	3.61	|	Q	|V	|	|
3+40	0.6077	3.80	|	Q	|V	|	|
3+45	0.6350	3.97	|	Q	|V	|	|
3+50	0.6635	4.14	|	Q	|V	|	|
3+55	0.6932	4.31	|	Q	|V	|	|
4+ 0	0.7240	4.48	|	Q	|V	|	|
4+ 5	0.7560	4.64	|	Q	|V	|	|
4+10	0.7902	4.96	|	Q	|V	|	|
4+15	0.8266	5.30	|	Q	V	|	|
4+20	0.8654	5.63	|	|Q	V	|	|
4+25	0.9065	5.97	|	|Q	V	|	|
4+30	0.9489	6.15	|	|Q	V	|	|
4+35	0.9925	6.33	|	|Q	V	|	|
4+40	1.0382	6.64	|	|Q	|V	|	|
4+45	1.0863	6.98	|	|Q	|V	|	|
4+50	1.1356	7.16	|	|Q	|V	|	|
4+55	1.1861	7.34	|	|Q	|V	|	|
5+ 0	1.2388	7.65	|	|Q	|V	|	|
5+ 5	1.2980	8.59	|	|Q	|V	|	|
5+10	1.3681	10.18	|	|Q	V	|	|
5+15	1.4477	11.55	|	|Q	V	|	|
5+20	1.5345	12.60	|	|Q	|V	|	|
5+25	1.6304	13.92	|	|Q	|V	|	|
5+30	1.7417	16.16	|	|Q	V	|	|
5+35	1.8254	12.17	|	|Q	|V	|	|
5+40	1.8583	4.78	|	Q	|	|	|
5+45	1.8726	2.06	|	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	5+50	1.8811	1.24	| Q	|	|	|
V|	5+55	1.8872	0.88	| Q	|	|	|
V|	6+ 0	1.8910	0.56	| Q	|	|	|
V	6+ 5	1.8927	0.25	Q			
V	6+10	1.8929	0.03	Q			
V	6+15	1.8929	0.00	Q			

Unit Hydrograph Analysis

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Study date 11/09/21 File: moval33post242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.

Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.015	(0.274)	0.006	0.010
2	0.17	0.07	0.015	(0.273)	0.006	0.010
3	0.25	0.07	0.015	(0.272)	0.006	0.010
4	0.33	0.10	0.023	(0.271)	0.009	0.014
5	0.42	0.10	0.023	(0.270)	0.009	0.014
6	0.50	0.10	0.023	(0.269)	0.009	0.014
7	0.58	0.10	0.023	(0.268)	0.009	0.014
8	0.67	0.10	0.023	(0.267)	0.009	0.014
9	0.75	0.10	0.023	(0.266)	0.009	0.014
10	0.83	0.13	0.031	(0.265)	0.012	0.019
11	0.92	0.13	0.031	(0.264)	0.012	0.019
12	1.00	0.13	0.031	(0.263)	0.012	0.019
13	1.08	0.10	0.023	(0.262)	0.009	0.014
14	1.17	0.10	0.023	(0.261)	0.009	0.014
15	1.25	0.10	0.023	(0.260)	0.009	0.014
16	1.33	0.10	0.023	(0.259)	0.009	0.014
17	1.42	0.10	0.023	(0.258)	0.009	0.014
18	1.50	0.10	0.023	(0.257)	0.009	0.014
19	1.58	0.10	0.023	(0.255)	0.009	0.014
20	1.67	0.10	0.023	(0.254)	0.009	0.014
21	1.75	0.10	0.023	(0.253)	0.009	0.014
22	1.83	0.13	0.031	(0.252)	0.012	0.019
23	1.92	0.13	0.031	(0.251)	0.012	0.019
24	2.00	0.13	0.031	(0.250)	0.012	0.019
25	2.08	0.13	0.031	(0.249)	0.012	0.019
26	2.17	0.13	0.031	(0.248)	0.012	0.019
27	2.25	0.13	0.031	(0.247)	0.012	0.019
28	2.33	0.13	0.031	(0.246)	0.012	0.019
29	2.42	0.13	0.031	(0.245)	0.012	0.019
30	2.50	0.13	0.031	(0.244)	0.012	0.019
31	2.58	0.17	0.039	(0.243)	0.015	0.024
32	2.67	0.17	0.039	(0.242)	0.015	0.024
33	2.75	0.17	0.039	(0.241)	0.015	0.024
34	2.83	0.17	0.039	(0.240)	0.015	0.024
35	2.92	0.17	0.039	(0.239)	0.015	0.024
36	3.00	0.17	0.039	(0.238)	0.015	0.024
37	3.08	0.17	0.039	(0.237)	0.015	0.024
38	3.17	0.17	0.039	(0.236)	0.015	0.024
39	3.25	0.17	0.039	(0.235)	0.015	0.024
40	3.33	0.17	0.039	(0.234)	0.015	0.024
41	3.42	0.17	0.039	(0.233)	0.015	0.024
42	3.50	0.17	0.039	(0.232)	0.015	0.024
43	3.58	0.17	0.039	(0.232)	0.015	0.024
44	3.67	0.17	0.039	(0.231)	0.015	0.024
45	3.75	0.17	0.039	(0.230)	0.015	0.024
46	3.83	0.20	0.046	(0.229)	0.018	0.029
47	3.92	0.20	0.046	(0.228)	0.018	0.029
48	4.00	0.20	0.046	(0.227)	0.018	0.029
49	4.08	0.20	0.046	(0.226)	0.018	0.029
50	4.17	0.20	0.046	(0.225)	0.018	0.029
51	4.25	0.20	0.046	(0.224)	0.018	0.029
52	4.33	0.23	0.054	(0.223)	0.021	0.034
53	4.42	0.23	0.054	(0.222)	0.021	0.034
54	4.50	0.23	0.054	(0.221)	0.021	0.034
55	4.58	0.23	0.054	(0.220)	0.021	0.034
56	4.67	0.23	0.054	(0.219)	0.021	0.034
57	4.75	0.23	0.054	(0.218)	0.021	0.034
58	4.83	0.27	0.062	(0.217)	0.023	0.038

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

59	4.92	0.27	0.062	(0.216)	0.023	0.038
60	5.00	0.27	0.062	(0.215)	0.023	0.038
61	5.08	0.20	0.046	(0.214)	0.018	0.029
62	5.17	0.20	0.046	(0.213)	0.018	0.029
63	5.25	0.20	0.046	(0.212)	0.018	0.029
64	5.33	0.23	0.054	(0.212)	0.021	0.034
65	5.42	0.23	0.054	(0.211)	0.021	0.034
66	5.50	0.23	0.054	(0.210)	0.021	0.034
67	5.58	0.27	0.062	(0.209)	0.023	0.038
68	5.67	0.27	0.062	(0.208)	0.023	0.038
69	5.75	0.27	0.062	(0.207)	0.023	0.038
70	5.83	0.27	0.062	(0.206)	0.023	0.038
71	5.92	0.27	0.062	(0.205)	0.023	0.038
72	6.00	0.27	0.062	(0.204)	0.023	0.038
73	6.08	0.30	0.069	(0.203)	0.026	0.043
74	6.17	0.30	0.069	(0.202)	0.026	0.043
75	6.25	0.30	0.069	(0.202)	0.026	0.043
76	6.33	0.30	0.069	(0.201)	0.026	0.043
77	6.42	0.30	0.069	(0.200)	0.026	0.043
78	6.50	0.30	0.069	(0.199)	0.026	0.043
79	6.58	0.33	0.077	(0.198)	0.029	0.048
80	6.67	0.33	0.077	(0.197)	0.029	0.048
81	6.75	0.33	0.077	(0.196)	0.029	0.048
82	6.83	0.33	0.077	(0.195)	0.029	0.048
83	6.92	0.33	0.077	(0.194)	0.029	0.048
84	7.00	0.33	0.077	(0.193)	0.029	0.048
85	7.08	0.33	0.077	(0.193)	0.029	0.048
86	7.17	0.33	0.077	(0.192)	0.029	0.048
87	7.25	0.33	0.077	(0.191)	0.029	0.048
88	7.33	0.37	0.085	(0.190)	0.032	0.053
89	7.42	0.37	0.085	(0.189)	0.032	0.053
90	7.50	0.37	0.085	(0.188)	0.032	0.053
91	7.58	0.40	0.093	(0.187)	0.035	0.057
92	7.67	0.40	0.093	(0.187)	0.035	0.057
93	7.75	0.40	0.093	(0.186)	0.035	0.057
94	7.83	0.43	0.100	(0.185)	0.038	0.062
95	7.92	0.43	0.100	(0.184)	0.038	0.062
96	8.00	0.43	0.100	(0.183)	0.038	0.062
97	8.08	0.50	0.116	(0.182)	0.044	0.072
98	8.17	0.50	0.116	(0.181)	0.044	0.072
99	8.25	0.50	0.116	(0.181)	0.044	0.072
100	8.33	0.50	0.116	(0.180)	0.044	0.072
101	8.42	0.50	0.116	(0.179)	0.044	0.072
102	8.50	0.50	0.116	(0.178)	0.044	0.072
103	8.58	0.53	0.124	(0.177)	0.047	0.077
104	8.67	0.53	0.124	(0.176)	0.047	0.077
105	8.75	0.53	0.124	(0.176)	0.047	0.077
106	8.83	0.57	0.131	(0.175)	0.050	0.081
107	8.92	0.57	0.131	(0.174)	0.050	0.081
108	9.00	0.57	0.131	(0.173)	0.050	0.081
109	9.08	0.63	0.147	(0.172)	0.056	0.091
110	9.17	0.63	0.147	(0.171)	0.056	0.091
111	9.25	0.63	0.147	(0.171)	0.056	0.091
112	9.33	0.67	0.154	(0.170)	0.059	0.096
113	9.42	0.67	0.154	(0.169)	0.059	0.096
114	9.50	0.67	0.154	(0.168)	0.059	0.096
115	9.58	0.70	0.162	(0.167)	0.062	0.101
116	9.67	0.70	0.162	(0.167)	0.062	0.101
117	9.75	0.70	0.162	(0.166)	0.062	0.101
118	9.83	0.73	0.170	(0.165)	0.065	0.105

119	9.92	0.73	0.170	(0.164)	0.065	0.105
120	10.00	0.73	0.170	(0.163)	0.065	0.105
121	10.08	0.50	0.116	(0.163)	0.044	0.072
122	10.17	0.50	0.116	(0.162)	0.044	0.072
123	10.25	0.50	0.116	(0.161)	0.044	0.072
124	10.33	0.50	0.116	(0.160)	0.044	0.072
125	10.42	0.50	0.116	(0.159)	0.044	0.072
126	10.50	0.50	0.116	(0.159)	0.044	0.072
127	10.58	0.67	0.154	(0.158)	0.059	0.096
128	10.67	0.67	0.154	(0.157)	0.059	0.096
129	10.75	0.67	0.154	(0.156)	0.059	0.096
130	10.83	0.67	0.154	(0.156)	0.059	0.096
131	10.92	0.67	0.154	(0.155)	0.059	0.096
132	11.00	0.67	0.154	(0.154)	0.059	0.096
133	11.08	0.63	0.147	(0.153)	0.056	0.091
134	11.17	0.63	0.147	(0.153)	0.056	0.091
135	11.25	0.63	0.147	(0.152)	0.056	0.091
136	11.33	0.63	0.147	(0.151)	0.056	0.091
137	11.42	0.63	0.147	(0.150)	0.056	0.091
138	11.50	0.63	0.147	(0.150)	0.056	0.091
139	11.58	0.57	0.131	(0.149)	0.050	0.081
140	11.67	0.57	0.131	(0.148)	0.050	0.081
141	11.75	0.57	0.131	(0.147)	0.050	0.081
142	11.83	0.60	0.139	(0.147)	0.053	0.086
143	11.92	0.60	0.139	(0.146)	0.053	0.086
144	12.00	0.60	0.139	(0.145)	0.053	0.086
145	12.08	0.83	0.193	(0.144)	0.073	0.120
146	12.17	0.83	0.193	(0.144)	0.073	0.120
147	12.25	0.83	0.193	(0.143)	0.073	0.120
148	12.33	0.87	0.201	(0.142)	0.076	0.124
149	12.42	0.87	0.201	(0.142)	0.076	0.124
150	12.50	0.87	0.201	(0.141)	0.076	0.124
151	12.58	0.93	0.216	(0.140)	0.082	0.134
152	12.67	0.93	0.216	(0.139)	0.082	0.134
153	12.75	0.93	0.216	(0.139)	0.082	0.134
154	12.83	0.97	0.224	(0.138)	0.085	0.139
155	12.92	0.97	0.224	(0.137)	0.085	0.139
156	13.00	0.97	0.224	(0.137)	0.085	0.139
157	13.08	1.13	0.262	(0.136)	0.100	0.163
158	13.17	1.13	0.262	(0.135)	0.100	0.163
159	13.25	1.13	0.262	(0.135)	0.100	0.163
160	13.33	1.13	0.262	(0.134)	0.100	0.163
161	13.42	1.13	0.262	(0.133)	0.100	0.163
162	13.50	1.13	0.262	(0.133)	0.100	0.163
163	13.58	0.77	0.178	(0.132)	0.067	0.110
164	13.67	0.77	0.178	(0.131)	0.067	0.110
165	13.75	0.77	0.178	(0.130)	0.067	0.110
166	13.83	0.77	0.178	(0.130)	0.067	0.110
167	13.92	0.77	0.178	(0.129)	0.067	0.110
168	14.00	0.77	0.178	(0.129)	0.067	0.110
169	14.08	0.90	0.208	(0.128)	0.079	0.129
170	14.17	0.90	0.208	(0.127)	0.079	0.129
171	14.25	0.90	0.208	(0.127)	0.079	0.129
172	14.33	0.87	0.201	(0.126)	0.076	0.124
173	14.42	0.87	0.201	(0.125)	0.076	0.124
174	14.50	0.87	0.201	(0.125)	0.076	0.124
175	14.58	0.87	0.201	(0.124)	0.076	0.124
176	14.67	0.87	0.201	(0.123)	0.076	0.124
177	14.75	0.87	0.201	(0.123)	0.076	0.124
178	14.83	0.83	0.193	(0.122)	0.073	0.120

179	14.92	0.83	0.193	(0.121)	0.073	0.120
180	15.00	0.83	0.193	(0.121)	0.073	0.120
181	15.08	0.80	0.185	(0.120)	0.070	0.115
182	15.17	0.80	0.185	(0.120)	0.070	0.115
183	15.25	0.80	0.185	(0.119)	0.070	0.115
184	15.33	0.77	0.178	(0.118)	0.067	0.110
185	15.42	0.77	0.178	(0.118)	0.067	0.110
186	15.50	0.77	0.178	(0.117)	0.067	0.110
187	15.58	0.63	0.147	(0.117)	0.056	0.091
188	15.67	0.63	0.147	(0.116)	0.056	0.091
189	15.75	0.63	0.147	(0.115)	0.056	0.091
190	15.83	0.63	0.147	(0.115)	0.056	0.091
191	15.92	0.63	0.147	(0.114)	0.056	0.091
192	16.00	0.63	0.147	(0.114)	0.056	0.091
193	16.08	0.13	0.031	(0.113)	0.012	0.019
194	16.17	0.13	0.031	(0.112)	0.012	0.019
195	16.25	0.13	0.031	(0.112)	0.012	0.019
196	16.33	0.13	0.031	(0.111)	0.012	0.019
197	16.42	0.13	0.031	(0.111)	0.012	0.019
198	16.50	0.13	0.031	(0.110)	0.012	0.019
199	16.58	0.10	0.023	(0.110)	0.009	0.014
200	16.67	0.10	0.023	(0.109)	0.009	0.014
201	16.75	0.10	0.023	(0.109)	0.009	0.014
202	16.83	0.10	0.023	(0.108)	0.009	0.014
203	16.92	0.10	0.023	(0.107)	0.009	0.014
204	17.00	0.10	0.023	(0.107)	0.009	0.014
205	17.08	0.17	0.039	(0.106)	0.015	0.024
206	17.17	0.17	0.039	(0.106)	0.015	0.024
207	17.25	0.17	0.039	(0.105)	0.015	0.024
208	17.33	0.17	0.039	(0.105)	0.015	0.024
209	17.42	0.17	0.039	(0.104)	0.015	0.024
210	17.50	0.17	0.039	(0.104)	0.015	0.024
211	17.58	0.17	0.039	(0.103)	0.015	0.024
212	17.67	0.17	0.039	(0.103)	0.015	0.024
213	17.75	0.17	0.039	(0.102)	0.015	0.024
214	17.83	0.13	0.031	(0.102)	0.012	0.019
215	17.92	0.13	0.031	(0.101)	0.012	0.019
216	18.00	0.13	0.031	(0.101)	0.012	0.019
217	18.08	0.13	0.031	(0.100)	0.012	0.019
218	18.17	0.13	0.031	(0.100)	0.012	0.019
219	18.25	0.13	0.031	(0.099)	0.012	0.019
220	18.33	0.13	0.031	(0.099)	0.012	0.019
221	18.42	0.13	0.031	(0.098)	0.012	0.019
222	18.50	0.13	0.031	(0.098)	0.012	0.019
223	18.58	0.10	0.023	(0.097)	0.009	0.014
224	18.67	0.10	0.023	(0.097)	0.009	0.014
225	18.75	0.10	0.023	(0.096)	0.009	0.014
226	18.83	0.07	0.015	(0.096)	0.006	0.010
227	18.92	0.07	0.015	(0.095)	0.006	0.010
228	19.00	0.07	0.015	(0.095)	0.006	0.010
229	19.08	0.10	0.023	(0.094)	0.009	0.014
230	19.17	0.10	0.023	(0.094)	0.009	0.014
231	19.25	0.10	0.023	(0.094)	0.009	0.014
232	19.33	0.13	0.031	(0.093)	0.012	0.019
233	19.42	0.13	0.031	(0.093)	0.012	0.019
234	19.50	0.13	0.031	(0.092)	0.012	0.019
235	19.58	0.10	0.023	(0.092)	0.009	0.014
236	19.67	0.10	0.023	(0.091)	0.009	0.014
237	19.75	0.10	0.023	(0.091)	0.009	0.014
238	19.83	0.07	0.015	(0.091)	0.006	0.010

239	19.92	0.07	0.015	(0.090)	0.006	0.010
240	20.00	0.07	0.015	(0.090)	0.006	0.010
241	20.08	0.10	0.023	(0.089)	0.009	0.014
242	20.17	0.10	0.023	(0.089)	0.009	0.014
243	20.25	0.10	0.023	(0.089)	0.009	0.014
244	20.33	0.10	0.023	(0.088)	0.009	0.014
245	20.42	0.10	0.023	(0.088)	0.009	0.014
246	20.50	0.10	0.023	(0.088)	0.009	0.014
247	20.58	0.10	0.023	(0.087)	0.009	0.014
248	20.67	0.10	0.023	(0.087)	0.009	0.014
249	20.75	0.10	0.023	(0.086)	0.009	0.014
250	20.83	0.07	0.015	(0.086)	0.006	0.010
251	20.92	0.07	0.015	(0.086)	0.006	0.010
252	21.00	0.07	0.015	(0.085)	0.006	0.010
253	21.08	0.10	0.023	(0.085)	0.009	0.014
254	21.17	0.10	0.023	(0.085)	0.009	0.014
255	21.25	0.10	0.023	(0.084)	0.009	0.014
256	21.33	0.07	0.015	(0.084)	0.006	0.010
257	21.42	0.07	0.015	(0.084)	0.006	0.010
258	21.50	0.07	0.015	(0.083)	0.006	0.010
259	21.58	0.10	0.023	(0.083)	0.009	0.014
260	21.67	0.10	0.023	(0.083)	0.009	0.014
261	21.75	0.10	0.023	(0.083)	0.009	0.014
262	21.83	0.07	0.015	(0.082)	0.006	0.010
263	21.92	0.07	0.015	(0.082)	0.006	0.010
264	22.00	0.07	0.015	(0.082)	0.006	0.010
265	22.08	0.10	0.023	(0.081)	0.009	0.014
266	22.17	0.10	0.023	(0.081)	0.009	0.014
267	22.25	0.10	0.023	(0.081)	0.009	0.014
268	22.33	0.07	0.015	(0.081)	0.006	0.010
269	22.42	0.07	0.015	(0.080)	0.006	0.010
270	22.50	0.07	0.015	(0.080)	0.006	0.010
271	22.58	0.07	0.015	(0.080)	0.006	0.010
272	22.67	0.07	0.015	(0.080)	0.006	0.010
273	22.75	0.07	0.015	(0.079)	0.006	0.010
274	22.83	0.07	0.015	(0.079)	0.006	0.010
275	22.92	0.07	0.015	(0.079)	0.006	0.010
276	23.00	0.07	0.015	(0.079)	0.006	0.010
277	23.08	0.07	0.015	(0.079)	0.006	0.010
278	23.17	0.07	0.015	(0.079)	0.006	0.010
279	23.25	0.07	0.015	(0.078)	0.006	0.010
280	23.33	0.07	0.015	(0.078)	0.006	0.010
281	23.42	0.07	0.015	(0.078)	0.006	0.010
282	23.50	0.07	0.015	(0.078)	0.006	0.010
283	23.58	0.07	0.015	(0.078)	0.006	0.010
284	23.67	0.07	0.015	(0.078)	0.006	0.010
285	23.75	0.07	0.015	(0.078)	0.006	0.010
286	23.83	0.07	0.015	(0.077)	0.006	0.010
287	23.92	0.07	0.015	(0.077)	0.006	0.010
288	24.00	0.07	0.015	(0.077)	0.006	0.010

(Loss Rate Not Used)

Sum =	100.0	Sum =	14.4
Flood volume =	Effective rainfall	1.20(In)	
times area	10.9(Ac.)/[((In)/(Ft.))] =	1.1(Ac.Ft)	
Total soil loss =	0.73(In)		
Total soil loss =	0.666(Ac.Ft)		
Total rainfall =	1.93(In)		
Flood volume =	47344.9 Cubic Feet		
Total soil loss =	29017.8 Cubic Feet		

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Peak flow rate of this hydrograph = 1.789(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0003		0.05	Q			
0+10	0.0010		0.10	Q			
0+15	0.0017		0.10	Q			
0+20	0.0026		0.13	Q			
0+25	0.0037		0.15	Q			
0+30	0.0048		0.16	Q			
0+35	0.0058		0.16	Q			
0+40	0.0069		0.16	Q			
0+45	0.0080		0.16	Q			
0+50	0.0093		0.18	Q			
0+55	0.0107		0.21	Q			
1+ 0	0.0121		0.21	Q			
1+ 5	0.0134		0.19	Q			
1+10	0.0145		0.16	Q			
1+15	0.0156		0.16	Q			
1+20	0.0167		0.16	Q			
1+25	0.0178		0.16	Q			
1+30	0.0189		0.16	Q			
1+35	0.0200		0.16	Q			
1+40	0.0211		0.16	Q			
1+45	0.0221		0.16	Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+50	0.0234	0.18	Q	|	|	|
1+55	0.0248	0.21	Q	|	|	|
2+ 0	0.0263	0.21	Q	|	|	|
2+ 5	0.0277	0.21	QV	|	|	|
2+10	0.0292	0.21	QV	|	|	|
2+15	0.0306	0.21	QV	|	|	|
2+20	0.0321	0.21	QV	|	|	|
2+25	0.0335	0.21	QV	|	|	|
2+30	0.0350	0.21	QV	|	|	|
2+35	0.0366	0.23	QV	|	|	|
2+40	0.0384	0.26	|Q	|	|	|
2+45	0.0402	0.26	|Q	|	|	|
2+50	0.0420	0.26	|Q	|	|	|
2+55	0.0438	0.26	|Q	|	|	|
3+ 0	0.0456	0.26	|Q	|	|	|
3+ 5	0.0474	0.26	|Q	|	|	|
3+10	0.0492	0.26	|Q	|	|	|
3+15	0.0510	0.26	|Q	|	|	|
3+20	0.0529	0.26	|Q	|	|	|
3+25	0.0547	0.26	|QV	|	|	|
3+30	0.0565	0.26	|QV	|	|	|
3+35	0.0583	0.26	|QV	|	|	|
3+40	0.0601	0.26	|QV	|	|	|
3+45	0.0619	0.26	|QV	|	|	|
3+50	0.0639	0.29	|QV	|	|	|
3+55	0.0660	0.31	|QV	|	|	|
4+ 0	0.0682	0.32	|QV	|	|	|
4+ 5	0.0704	0.32	|QV	|	|	|
4+10	0.0725	0.32	|QV	|	|	|
4+15	0.0747	0.32	|QV	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+20	0.0771	0.34	|QV	|	|	|
4+25	0.0796	0.36	|QV	|	|	|
4+30	0.0821	0.37	|Q V	|	|	|
4+35	0.0846	0.37	|Q V	|	|	|
4+40	0.0872	0.37	|Q V	|	|	|
4+45	0.0897	0.37	|Q V	|	|	|
4+50	0.0924	0.39	|Q V	|	|	|
4+55	0.0953	0.42	|Q V	|	|	|
5+ 0	0.0982	0.42	|Q V	|	|	|
5+ 5	0.1008	0.37	|Q V	|	|	|
5+10	0.1030	0.32	|Q V	|	|	|
5+15	0.1052	0.32	|Q V	|	|	|
5+20	0.1075	0.34	|Q V	|	|	|
5+25	0.1100	0.36	|Q V	|	|	|
5+30	0.1125	0.37	|Q V	|	|	|
5+35	0.1152	0.39	|Q V	|	|	|
5+40	0.1181	0.42	|Q V	|	|	|
5+45	0.1210	0.42	|Q V	|	|	|
5+50	0.1239	0.42	|Q V	|	|	|
5+55	0.1268	0.42	|Q V	|	|	|
6+ 0	0.1297	0.42	|Q V	|	|	|
6+ 5	0.1328	0.44	|Q V	|	|	|
6+10	0.1360	0.47	|Q V	|	|	|
6+15	0.1393	0.47	|Q V	|	|	|
6+20	0.1425	0.47	|Q V	|	|	|
6+25	0.1458	0.47	|Q V	|	|	|
6+30	0.1490	0.47	|Q V	|	|	|
6+35	0.1525	0.50	|Q V	|	|	|
6+40	0.1561	0.52	| Q V	|	|	|
6+45	0.1597	0.53	| Q V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+50	0.1633	0.53	|	Q	V	|	|	|
6+55	0.1669	0.53	|	Q	V	|	|	|
7+ 0	0.1706	0.53	|	Q	V	|	|	|
7+ 5	0.1742	0.53	|	Q	V	|	|	|
7+10	0.1778	0.53	|	Q	V	|	|	|
7+15	0.1814	0.53	|	Q	V	|	|	|
7+20	0.1852	0.55	|	Q	V	|	|	|
7+25	0.1892	0.58	|	Q	V	|	|	|
7+30	0.1931	0.58	|	Q	V	|	|	|
7+35	0.1973	0.60	|	Q	V	|	|	|
7+40	0.2016	0.63	|	Q	V	|	|	|
7+45	0.2060	0.63	|	Q	V	|	|	|
7+50	0.2105	0.65	|	Q	V	|	|	|
7+55	0.2152	0.68	|	Q	V	|	|	|
8+ 0	0.2199	0.68	|	Q	V	|	|	|
8+ 5	0.2249	0.73	|	Q	V	|	|	|
8+10	0.2303	0.78	|	Q	V	|	|	|
8+15	0.2357	0.79	|	Q	V	|	|	|
8+20	0.2412	0.79	|	Q	V	|	|	|
8+25	0.2466	0.79	|	Q	V	|	|	|
8+30	0.2520	0.79	|	Q	V	|	|	|
8+35	0.2576	0.81	|	Q	V	|	|	|
8+40	0.2634	0.84	|	Q	V	|	|	|
8+45	0.2692	0.84	|	Q	V	|	|	|
8+50	0.2751	0.87	|	Q	V	|	|	|
8+55	0.2813	0.89	|	Q	V	|	|	|
9+ 0	0.2874	0.89	|	Q	V	|	|	|
9+ 5	0.2939	0.94	|	Q	V	|	|	|
9+10	0.3008	0.99	|	Q	|V	|	|	|
9+15	0.3076	1.00	|	Q	|V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

9+20	0.3147	1.02	|	Q	|	V	|		|
9+25	0.3219	1.05	|	Q	|	V	|		|
9+30	0.3291	1.05	|	Q	|	V	|		|
9+35	0.3366	1.08	|	Q	|	V	|		|
9+40	0.3441	1.10	|	Q	|	V	|		|
9+45	0.3517	1.10	|	Q	|	V	|		|
9+50	0.3595	1.13	|	Q	|	V	|		|
9+55	0.3675	1.15	|	Q	|	V	|		|
10+ 0	0.3754	1.16	|	Q	|	V	|		|
10+ 5	0.3823	0.99	|	Q	|	V	|		|
10+10	0.3879	0.81	|	Q	|	V	|		|
10+15	0.3933	0.79	|	Q	|	V	|		|
10+20	0.3988	0.79	|	Q	|	V	|		|
10+25	0.4042	0.79	|	Q	|	V	|		|
10+30	0.4096	0.79	|	Q	|	V	|		|
10+35	0.4159	0.91	|	Q	|	V	|		|
10+40	0.4230	1.04	|	Q	|	V	|		|
10+45	0.4302	1.05	|	Q	|	V	|		|
10+50	0.4375	1.05	|	Q	|	V	|		|
10+55	0.4447	1.05	|	Q	|	V	|		|
11+ 0	0.4520	1.05	|	Q	|	V	|		|
11+ 5	0.4590	1.03	|	Q	|	V	|		|
11+10	0.4660	1.00	|	Q	|	V	|		|
11+15	0.4728	1.00	|	Q	|	V	|		|
11+20	0.4797	1.00	|	Q	|	V	|		|
11+25	0.4866	1.00	|	Q	|	V	|		|
11+30	0.4935	1.00	|	Q	|	V	|		|
11+35	0.5001	0.95	|	Q	|	V	|		|
11+40	0.5063	0.90	|	Q	|	V	|		|
11+45	0.5124	0.90	|	Q	|	V	|		|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

11+50	0.5187	0.92	Q	V
11+55	0.5252	0.94	Q	V
12+ 0	0.5318	0.95	Q	V
12+ 5	0.5394	1.11	Q	V
12+10	0.5483	1.29	Q	V
12+15	0.5573	1.31	Q	V
12+20	0.5666	1.34	Q	V
12+25	0.5760	1.36	Q	V
12+30	0.5854	1.37	Q	V
12+35	0.5951	1.41	Q	V
12+40	0.6052	1.47	Q	V
12+45	0.6154	1.47	Q	V
12+50	0.6257	1.50	Q	V
12+55	0.6362	1.52	Q	V
13+ 0	0.6467	1.53	Q	V
13+ 5	0.6580	1.64	Q	V
13+10	0.6702	1.77	Q	V
13+15	0.6825	1.79	Q	V
13+20	0.6948	1.79	Q	V
13+25	0.7071	1.79	Q	V
13+30	0.7194	1.79	Q	V
13+35	0.7300	1.53	Q	V
13+40	0.7386	1.25	Q	V
13+45	0.7469	1.21	Q	V
13+50	0.7553	1.21	Q	V
13+55	0.7636	1.21	Q	V
14+ 0	0.7719	1.21	Q	V
14+ 5	0.7809	1.30	Q	V
14+10	0.7906	1.41	Q	V
14+15	0.8004	1.42	Q	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

14+20	0.8100	1.40	|	Q	|	|	V|
14+25	0.8194	1.37	|	Q	|	|	V
14+30	0.8288	1.37	|	Q	|	|	V
14+35	0.8383	1.37	|	Q	|	|	V
14+40	0.8477	1.37	|	Q	|	|	|V
14+45	0.8571	1.37	|	Q	|	|	|V
14+50	0.8664	1.34	|	Q	|	|	|V
14+55	0.8754	1.32	|	Q	|	|	| V
15+ 0	0.8845	1.32	|	Q	|	|	| V
15+ 5	0.8934	1.29	|	Q	|	|	| V
15+10	0.9021	1.27	|	Q	|	|	| V
15+15	0.9108	1.26	|	Q	|	|	| V
15+20	0.9193	1.24	|	Q	|	|	| V
15+25	0.9277	1.21	|	Q	|	|	| V
15+30	0.9360	1.21	|	Q	|	|	| V
15+35	0.9437	1.12	|	Q	|	|	| V
15+40	0.9507	1.01	|	Q	|	|	| V
15+45	0.9576	1.00	|	Q	|	|	| V
15+50	0.9645	1.00	|	Q	|	|	| V
15+55	0.9714	1.00	|	Q	|	|	| V
16+ 0	0.9782	1.00	|	Q	|	|	| V
16+ 5	0.9827	0.65	|	Q	|	|	| V
16+10	0.9845	0.26	|	Q	|	|	| V
16+15	0.9860	0.22	Q	|	|	|	| V
16+20	0.9874	0.21	Q	|	|	|	| V
16+25	0.9889	0.21	Q	|	|	|	| V
16+30	0.9903	0.21	Q	|	|	|	| V
16+35	0.9916	0.19	Q	|	|	|	| V
16+40	0.9927	0.16	Q	|	|	|	| V
16+45	0.9938	0.16	Q	|	|	|	| V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

16+50	0.9949	0.16	Q	|	|	|	V
16+55	0.9960	0.16	Q	|	|	|	V
17+ 0	0.9971	0.16	Q	|	|	|	V
17+ 5	0.9985	0.20	Q	|	|	|	V
17+10	1.0003	0.26	|Q	|	|	|	V
17+15	1.0021	0.26	|Q	|	|	|	V
17+20	1.0039	0.26	|Q	|	|	|	V
17+25	1.0057	0.26	|Q	|	|	|	V
17+30	1.0075	0.26	|Q	|	|	|	V
17+35	1.0093	0.26	|Q	|	|	|	V
17+40	1.0111	0.26	|Q	|	|	|	V
17+45	1.0129	0.26	|Q	|	|	|	V
17+50	1.0146	0.24	Q	|	|	|	V
17+55	1.0161	0.21	Q	|	|	|	V
18+ 0	1.0175	0.21	Q	|	|	|	V
18+ 5	1.0190	0.21	Q	|	|	|	V
18+10	1.0204	0.21	Q	|	|	|	V
18+15	1.0219	0.21	Q	|	|	|	V
18+20	1.0233	0.21	Q	|	|	|	V
18+25	1.0248	0.21	Q	|	|	|	V
18+30	1.0262	0.21	Q	|	|	|	V
18+35	1.0275	0.19	Q	|	|	|	V
18+40	1.0286	0.16	Q	|	|	|	V
18+45	1.0297	0.16	Q	|	|	|	V
18+50	1.0306	0.13	Q	|	|	|	V
18+55	1.0314	0.11	Q	|	|	|	V
19+ 0	1.0321	0.11	Q	|	|	|	V
19+ 5	1.0330	0.13	Q	|	|	|	V
19+10	1.0340	0.15	Q	|	|	|	V
19+15	1.0351	0.16	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	19+20	1.0364	0.18	Q	|	|	|	V
|	19+25	1.0378	0.21	Q	|	|	|	V
|	19+30	1.0392	0.21	Q	|	|	|	V
|	19+35	1.0405	0.19	Q	|	|	|	V
|	19+40	1.0416	0.16	Q	|	|	|	V
|	19+45	1.0427	0.16	Q	|	|	|	V
|	19+50	1.0437	0.13	Q	|	|	|	V
|	19+55	1.0444	0.11	Q	|	|	|	V
|	20+ 0	1.0451	0.11	Q	|	|	|	V
|	20+ 5	1.0460	0.13	Q	|	|	|	V
|	20+10	1.0471	0.15	Q	|	|	|	V
|	20+15	1.0482	0.16	Q	|	|	|	V
|	20+20	1.0493	0.16	Q	|	|	|	V
|	20+25	1.0503	0.16	Q	|	|	|	V
|	20+30	1.0514	0.16	Q	|	|	|	V
|	20+35	1.0525	0.16	Q	|	|	|	V
|	20+40	1.0536	0.16	Q	|	|	|	V
|	20+45	1.0547	0.16	Q	|	|	|	V
|	20+50	1.0556	0.13	Q	|	|	|	V
|	20+55	1.0564	0.11	Q	|	|	|	V
|	21+ 0	1.0571	0.11	Q	|	|	|	V
|	21+ 5	1.0580	0.13	Q	|	|	|	V
|	21+10	1.0590	0.15	Q	|	|	|	V
|	21+15	1.0601	0.16	Q	|	|	|	V
V|	21+20	1.0610	0.13	Q	|	|	|	V
V|	21+25	1.0618	0.11	Q	|	|	|	V
V|	21+30	1.0625	0.11	Q	|	|	|	V
V|	21+35	1.0634	0.13	Q	|	|	|	V
V|	21+40	1.0645	0.15	Q	|	|	|	V
V|	21+45	1.0656	0.16	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	1.0665	0.13	Q	|	|	|
V|	21+55	1.0672	0.11	Q	|	|	|
V|	22+ 0	1.0680	0.11	Q	|	|	|
V|	22+ 5	1.0688	0.13	Q	|	|	|
V|	22+10	1.0699	0.15	Q	|	|	|
V|	22+15	1.0710	0.16	Q	|	|	|
V|	22+20	1.0719	0.13	Q	|	|	|
V|	22+25	1.0727	0.11	Q	|	|	|
V|	22+30	1.0734	0.11	Q	|	|	|
V|	22+35	1.0741	0.11	Q	|	|	|
V|	22+40	1.0748	0.11	Q	|	|	|
V|	22+45	1.0756	0.11	Q	|	|	|
V|	22+50	1.0763	0.11	Q	|	|	|
V|	22+55	1.0770	0.11	Q	|	|	|
V|	23+ 0	1.0777	0.11	Q	|	|	|
V|	23+ 5	1.0785	0.11	Q	|	|	|
V|	23+10	1.0792	0.11	Q	|	|	|
V|	23+15	1.0799	0.11	Q	|	|	|
V|	23+20	1.0806	0.11	Q	|	|	|
V|	23+25	1.0814	0.11	Q	|	|	|
V|	23+30	1.0821	0.11	Q	|	|	|
V|	23+35	1.0828	0.11	Q	|	|	|
V|	23+40	1.0835	0.11	Q	|	|	|
V|	23+45	1.0843	0.11	Q	|	|	|
V|	23+50	1.0850	0.11	Q	|	|	|
V|	23+55	1.0857	0.11	Q	|	|	|
V|	24+ 0	1.0864	0.11	Q	|	|	|
V|	24+ 5	1.0868	0.06	Q	|	|	|
V|	24+10	1.0869	0.01	Q	|	|	|
V|	24+15	1.0869	0.00	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post245.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

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Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.

Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.021	(0.274)	0.008	0.013
2	0.17	0.07	0.021	(0.273)	0.008	0.013
3	0.25	0.07	0.021	(0.272)	0.008	0.013
4	0.33	0.10	0.031	(0.271)	0.012	0.019
5	0.42	0.10	0.031	(0.270)	0.012	0.019
6	0.50	0.10	0.031	(0.269)	0.012	0.019
7	0.58	0.10	0.031	(0.268)	0.012	0.019
8	0.67	0.10	0.031	(0.267)	0.012	0.019
9	0.75	0.10	0.031	(0.266)	0.012	0.019
10	0.83	0.13	0.041	(0.265)	0.016	0.025
11	0.92	0.13	0.041	(0.264)	0.016	0.025
12	1.00	0.13	0.041	(0.263)	0.016	0.025
13	1.08	0.10	0.031	(0.262)	0.012	0.019
14	1.17	0.10	0.031	(0.261)	0.012	0.019
15	1.25	0.10	0.031	(0.260)	0.012	0.019
16	1.33	0.10	0.031	(0.259)	0.012	0.019
17	1.42	0.10	0.031	(0.258)	0.012	0.019
18	1.50	0.10	0.031	(0.257)	0.012	0.019
19	1.58	0.10	0.031	(0.255)	0.012	0.019
20	1.67	0.10	0.031	(0.254)	0.012	0.019
21	1.75	0.10	0.031	(0.253)	0.012	0.019
22	1.83	0.13	0.041	(0.252)	0.016	0.025
23	1.92	0.13	0.041	(0.251)	0.016	0.025
24	2.00	0.13	0.041	(0.250)	0.016	0.025
25	2.08	0.13	0.041	(0.249)	0.016	0.025
26	2.17	0.13	0.041	(0.248)	0.016	0.025
27	2.25	0.13	0.041	(0.247)	0.016	0.025
28	2.33	0.13	0.041	(0.246)	0.016	0.025
29	2.42	0.13	0.041	(0.245)	0.016	0.025
30	2.50	0.13	0.041	(0.244)	0.016	0.025
31	2.58	0.17	0.051	(0.243)	0.019	0.032
32	2.67	0.17	0.051	(0.242)	0.019	0.032
33	2.75	0.17	0.051	(0.241)	0.019	0.032
34	2.83	0.17	0.051	(0.240)	0.019	0.032
35	2.92	0.17	0.051	(0.239)	0.019	0.032
36	3.00	0.17	0.051	(0.238)	0.019	0.032
37	3.08	0.17	0.051	(0.237)	0.019	0.032
38	3.17	0.17	0.051	(0.236)	0.019	0.032
39	3.25	0.17	0.051	(0.235)	0.019	0.032
40	3.33	0.17	0.051	(0.234)	0.019	0.032
41	3.42	0.17	0.051	(0.233)	0.019	0.032
42	3.50	0.17	0.051	(0.232)	0.019	0.032
43	3.58	0.17	0.051	(0.232)	0.019	0.032
44	3.67	0.17	0.051	(0.231)	0.019	0.032
45	3.75	0.17	0.051	(0.230)	0.019	0.032
46	3.83	0.20	0.062	(0.229)	0.023	0.038
47	3.92	0.20	0.062	(0.228)	0.023	0.038
48	4.00	0.20	0.062	(0.227)	0.023	0.038
49	4.08	0.20	0.062	(0.226)	0.023	0.038
50	4.17	0.20	0.062	(0.225)	0.023	0.038
51	4.25	0.20	0.062	(0.224)	0.023	0.038
52	4.33	0.23	0.072	(0.223)	0.027	0.045
53	4.42	0.23	0.072	(0.222)	0.027	0.045
54	4.50	0.23	0.072	(0.221)	0.027	0.045
55	4.58	0.23	0.072	(0.220)	0.027	0.045
56	4.67	0.23	0.072	(0.219)	0.027	0.045
57	4.75	0.23	0.072	(0.218)	0.027	0.045
58	4.83	0.27	0.082	(0.217)	0.031	0.051

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59	4.92	0.27	0.082	(0.216)	0.031	0.051
60	5.00	0.27	0.082	(0.215)	0.031	0.051
61	5.08	0.20	0.062	(0.214)	0.023	0.038
62	5.17	0.20	0.062	(0.213)	0.023	0.038
63	5.25	0.20	0.062	(0.212)	0.023	0.038
64	5.33	0.23	0.072	(0.212)	0.027	0.045
65	5.42	0.23	0.072	(0.211)	0.027	0.045
66	5.50	0.23	0.072	(0.210)	0.027	0.045
67	5.58	0.27	0.082	(0.209)	0.031	0.051
68	5.67	0.27	0.082	(0.208)	0.031	0.051
69	5.75	0.27	0.082	(0.207)	0.031	0.051
70	5.83	0.27	0.082	(0.206)	0.031	0.051
71	5.92	0.27	0.082	(0.205)	0.031	0.051
72	6.00	0.27	0.082	(0.204)	0.031	0.051
73	6.08	0.30	0.092	(0.203)	0.035	0.057
74	6.17	0.30	0.092	(0.202)	0.035	0.057
75	6.25	0.30	0.092	(0.202)	0.035	0.057
76	6.33	0.30	0.092	(0.201)	0.035	0.057
77	6.42	0.30	0.092	(0.200)	0.035	0.057
78	6.50	0.30	0.092	(0.199)	0.035	0.057
79	6.58	0.33	0.103	(0.198)	0.039	0.064
80	6.67	0.33	0.103	(0.197)	0.039	0.064
81	6.75	0.33	0.103	(0.196)	0.039	0.064
82	6.83	0.33	0.103	(0.195)	0.039	0.064
83	6.92	0.33	0.103	(0.194)	0.039	0.064
84	7.00	0.33	0.103	(0.193)	0.039	0.064
85	7.08	0.33	0.103	(0.193)	0.039	0.064
86	7.17	0.33	0.103	(0.192)	0.039	0.064
87	7.25	0.33	0.103	(0.191)	0.039	0.064
88	7.33	0.37	0.113	(0.190)	0.043	0.070
89	7.42	0.37	0.113	(0.189)	0.043	0.070
90	7.50	0.37	0.113	(0.188)	0.043	0.070
91	7.58	0.40	0.123	(0.187)	0.047	0.076
92	7.67	0.40	0.123	(0.187)	0.047	0.076
93	7.75	0.40	0.123	(0.186)	0.047	0.076
94	7.83	0.43	0.133	(0.185)	0.051	0.083
95	7.92	0.43	0.133	(0.184)	0.051	0.083
96	8.00	0.43	0.133	(0.183)	0.051	0.083
97	8.08	0.50	0.154	(0.182)	0.058	0.095
98	8.17	0.50	0.154	(0.181)	0.058	0.095
99	8.25	0.50	0.154	(0.181)	0.058	0.095
100	8.33	0.50	0.154	(0.180)	0.058	0.095
101	8.42	0.50	0.154	(0.179)	0.058	0.095
102	8.50	0.50	0.154	(0.178)	0.058	0.095
103	8.58	0.53	0.164	(0.177)	0.062	0.102
104	8.67	0.53	0.164	(0.176)	0.062	0.102
105	8.75	0.53	0.164	(0.176)	0.062	0.102
106	8.83	0.57	0.174	(0.175)	0.066	0.108
107	8.92	0.57	0.174	(0.174)	0.066	0.108
108	9.00	0.57	0.174	(0.173)	0.066	0.108
109	9.08	0.63	0.195	(0.172)	0.074	0.121
110	9.17	0.63	0.195	(0.171)	0.074	0.121
111	9.25	0.63	0.195	(0.171)	0.074	0.121
112	9.33	0.67	0.205	(0.170)	0.078	0.127
113	9.42	0.67	0.205	(0.169)	0.078	0.127
114	9.50	0.67	0.205	(0.168)	0.078	0.127
115	9.58	0.70	0.215	(0.167)	0.082	0.134
116	9.67	0.70	0.215	(0.167)	0.082	0.134
117	9.75	0.70	0.215	(0.166)	0.082	0.134
118	9.83	0.73	0.226	(0.165)	0.086	0.140

119	9.92	0.73	0.226	(0.164)	0.086	0.140
120	10.00	0.73	0.226	(0.163)	0.086	0.140
121	10.08	0.50	0.154	(0.163)	0.058	0.095
122	10.17	0.50	0.154	(0.162)	0.058	0.095
123	10.25	0.50	0.154	(0.161)	0.058	0.095
124	10.33	0.50	0.154	(0.160)	0.058	0.095
125	10.42	0.50	0.154	(0.159)	0.058	0.095
126	10.50	0.50	0.154	(0.159)	0.058	0.095
127	10.58	0.67	0.205	(0.158)	0.078	0.127
128	10.67	0.67	0.205	(0.157)	0.078	0.127
129	10.75	0.67	0.205	(0.156)	0.078	0.127
130	10.83	0.67	0.205	(0.156)	0.078	0.127
131	10.92	0.67	0.205	(0.155)	0.078	0.127
132	11.00	0.67	0.205	(0.154)	0.078	0.127
133	11.08	0.63	0.195	(0.153)	0.074	0.121
134	11.17	0.63	0.195	(0.153)	0.074	0.121
135	11.25	0.63	0.195	(0.152)	0.074	0.121
136	11.33	0.63	0.195	(0.151)	0.074	0.121
137	11.42	0.63	0.195	(0.150)	0.074	0.121
138	11.50	0.63	0.195	(0.150)	0.074	0.121
139	11.58	0.57	0.174	(0.149)	0.066	0.108
140	11.67	0.57	0.174	(0.148)	0.066	0.108
141	11.75	0.57	0.174	(0.147)	0.066	0.108
142	11.83	0.60	0.185	(0.147)	0.070	0.114
143	11.92	0.60	0.185	(0.146)	0.070	0.114
144	12.00	0.60	0.185	(0.145)	0.070	0.114
145	12.08	0.83	0.256	(0.144)	0.097	0.159
146	12.17	0.83	0.256	(0.144)	0.097	0.159
147	12.25	0.83	0.256	(0.143)	0.097	0.159
148	12.33	0.87	0.267	(0.142)	0.101	0.165
149	12.42	0.87	0.267	(0.142)	0.101	0.165
150	12.50	0.87	0.267	(0.141)	0.101	0.165
151	12.58	0.93	0.287	(0.140)	0.109	0.178
152	12.67	0.93	0.287	(0.139)	0.109	0.178
153	12.75	0.93	0.287	(0.139)	0.109	0.178
154	12.83	0.97	0.298	(0.138)	0.113	0.184
155	12.92	0.97	0.298	(0.137)	0.113	0.184
156	13.00	0.97	0.298	(0.137)	0.113	0.184
157	13.08	1.13	0.349	(0.136)	0.133	0.216
158	13.17	1.13	0.349	(0.135)	0.133	0.216
159	13.25	1.13	0.349	(0.135)	0.133	0.216
160	13.33	1.13	0.349	(0.134)	0.133	0.216
161	13.42	1.13	0.349	(0.133)	0.133	0.216
162	13.50	1.13	0.349	0.133	(0.133)	0.216
163	13.58	0.77	0.236	(0.132)	0.090	0.146
164	13.67	0.77	0.236	(0.131)	0.090	0.146
165	13.75	0.77	0.236	(0.130)	0.090	0.146
166	13.83	0.77	0.236	(0.130)	0.090	0.146
167	13.92	0.77	0.236	(0.129)	0.090	0.146
168	14.00	0.77	0.236	(0.129)	0.090	0.146
169	14.08	0.90	0.277	(0.128)	0.105	0.172
170	14.17	0.90	0.277	(0.127)	0.105	0.172
171	14.25	0.90	0.277	(0.127)	0.105	0.172
172	14.33	0.87	0.267	(0.126)	0.101	0.165
173	14.42	0.87	0.267	(0.125)	0.101	0.165
174	14.50	0.87	0.267	(0.125)	0.101	0.165
175	14.58	0.87	0.267	(0.124)	0.101	0.165
176	14.67	0.87	0.267	(0.123)	0.101	0.165
177	14.75	0.87	0.267	(0.123)	0.101	0.165
178	14.83	0.83	0.256	(0.122)	0.097	0.159

179	14.92	0.83	0.256	(0.121)	0.097	0.159
180	15.00	0.83	0.256	(0.121)	0.097	0.159
181	15.08	0.80	0.246	(0.120)	0.094	0.153
182	15.17	0.80	0.246	(0.120)	0.094	0.153
183	15.25	0.80	0.246	(0.119)	0.094	0.153
184	15.33	0.77	0.236	(0.118)	0.090	0.146
185	15.42	0.77	0.236	(0.118)	0.090	0.146
186	15.50	0.77	0.236	(0.117)	0.090	0.146
187	15.58	0.63	0.195	(0.117)	0.074	0.121
188	15.67	0.63	0.195	(0.116)	0.074	0.121
189	15.75	0.63	0.195	(0.115)	0.074	0.121
190	15.83	0.63	0.195	(0.115)	0.074	0.121
191	15.92	0.63	0.195	(0.114)	0.074	0.121
192	16.00	0.63	0.195	(0.114)	0.074	0.121
193	16.08	0.13	0.041	(0.113)	0.016	0.025
194	16.17	0.13	0.041	(0.112)	0.016	0.025
195	16.25	0.13	0.041	(0.112)	0.016	0.025
196	16.33	0.13	0.041	(0.111)	0.016	0.025
197	16.42	0.13	0.041	(0.111)	0.016	0.025
198	16.50	0.13	0.041	(0.110)	0.016	0.025
199	16.58	0.10	0.031	(0.110)	0.012	0.019
200	16.67	0.10	0.031	(0.109)	0.012	0.019
201	16.75	0.10	0.031	(0.109)	0.012	0.019
202	16.83	0.10	0.031	(0.108)	0.012	0.019
203	16.92	0.10	0.031	(0.107)	0.012	0.019
204	17.00	0.10	0.031	(0.107)	0.012	0.019
205	17.08	0.17	0.051	(0.106)	0.019	0.032
206	17.17	0.17	0.051	(0.106)	0.019	0.032
207	17.25	0.17	0.051	(0.105)	0.019	0.032
208	17.33	0.17	0.051	(0.105)	0.019	0.032
209	17.42	0.17	0.051	(0.104)	0.019	0.032
210	17.50	0.17	0.051	(0.104)	0.019	0.032
211	17.58	0.17	0.051	(0.103)	0.019	0.032
212	17.67	0.17	0.051	(0.103)	0.019	0.032
213	17.75	0.17	0.051	(0.102)	0.019	0.032
214	17.83	0.13	0.041	(0.102)	0.016	0.025
215	17.92	0.13	0.041	(0.101)	0.016	0.025
216	18.00	0.13	0.041	(0.101)	0.016	0.025
217	18.08	0.13	0.041	(0.100)	0.016	0.025
218	18.17	0.13	0.041	(0.100)	0.016	0.025
219	18.25	0.13	0.041	(0.099)	0.016	0.025
220	18.33	0.13	0.041	(0.099)	0.016	0.025
221	18.42	0.13	0.041	(0.098)	0.016	0.025
222	18.50	0.13	0.041	(0.098)	0.016	0.025
223	18.58	0.10	0.031	(0.097)	0.012	0.019
224	18.67	0.10	0.031	(0.097)	0.012	0.019
225	18.75	0.10	0.031	(0.096)	0.012	0.019
226	18.83	0.07	0.021	(0.096)	0.008	0.013
227	18.92	0.07	0.021	(0.095)	0.008	0.013
228	19.00	0.07	0.021	(0.095)	0.008	0.013
229	19.08	0.10	0.031	(0.094)	0.012	0.019
230	19.17	0.10	0.031	(0.094)	0.012	0.019
231	19.25	0.10	0.031	(0.094)	0.012	0.019
232	19.33	0.13	0.041	(0.093)	0.016	0.025
233	19.42	0.13	0.041	(0.093)	0.016	0.025
234	19.50	0.13	0.041	(0.092)	0.016	0.025
235	19.58	0.10	0.031	(0.092)	0.012	0.019
236	19.67	0.10	0.031	(0.091)	0.012	0.019
237	19.75	0.10	0.031	(0.091)	0.012	0.019
238	19.83	0.07	0.021	(0.091)	0.008	0.013

239	19.92	0.07	0.021	(0.090)	0.008	0.013
240	20.00	0.07	0.021	(0.090)	0.008	0.013
241	20.08	0.10	0.031	(0.089)	0.012	0.019
242	20.17	0.10	0.031	(0.089)	0.012	0.019
243	20.25	0.10	0.031	(0.089)	0.012	0.019
244	20.33	0.10	0.031	(0.088)	0.012	0.019
245	20.42	0.10	0.031	(0.088)	0.012	0.019
246	20.50	0.10	0.031	(0.088)	0.012	0.019
247	20.58	0.10	0.031	(0.087)	0.012	0.019
248	20.67	0.10	0.031	(0.087)	0.012	0.019
249	20.75	0.10	0.031	(0.086)	0.012	0.019
250	20.83	0.07	0.021	(0.086)	0.008	0.013
251	20.92	0.07	0.021	(0.086)	0.008	0.013
252	21.00	0.07	0.021	(0.085)	0.008	0.013
253	21.08	0.10	0.031	(0.085)	0.012	0.019
254	21.17	0.10	0.031	(0.085)	0.012	0.019
255	21.25	0.10	0.031	(0.084)	0.012	0.019
256	21.33	0.07	0.021	(0.084)	0.008	0.013
257	21.42	0.07	0.021	(0.084)	0.008	0.013
258	21.50	0.07	0.021	(0.083)	0.008	0.013
259	21.58	0.10	0.031	(0.083)	0.012	0.019
260	21.67	0.10	0.031	(0.083)	0.012	0.019
261	21.75	0.10	0.031	(0.083)	0.012	0.019
262	21.83	0.07	0.021	(0.082)	0.008	0.013
263	21.92	0.07	0.021	(0.082)	0.008	0.013
264	22.00	0.07	0.021	(0.082)	0.008	0.013
265	22.08	0.10	0.031	(0.081)	0.012	0.019
266	22.17	0.10	0.031	(0.081)	0.012	0.019
267	22.25	0.10	0.031	(0.081)	0.012	0.019
268	22.33	0.07	0.021	(0.081)	0.008	0.013
269	22.42	0.07	0.021	(0.080)	0.008	0.013
270	22.50	0.07	0.021	(0.080)	0.008	0.013
271	22.58	0.07	0.021	(0.080)	0.008	0.013
272	22.67	0.07	0.021	(0.080)	0.008	0.013
273	22.75	0.07	0.021	(0.079)	0.008	0.013
274	22.83	0.07	0.021	(0.079)	0.008	0.013
275	22.92	0.07	0.021	(0.079)	0.008	0.013
276	23.00	0.07	0.021	(0.079)	0.008	0.013
277	23.08	0.07	0.021	(0.079)	0.008	0.013
278	23.17	0.07	0.021	(0.079)	0.008	0.013
279	23.25	0.07	0.021	(0.078)	0.008	0.013
280	23.33	0.07	0.021	(0.078)	0.008	0.013
281	23.42	0.07	0.021	(0.078)	0.008	0.013
282	23.50	0.07	0.021	(0.078)	0.008	0.013
283	23.58	0.07	0.021	(0.078)	0.008	0.013
284	23.67	0.07	0.021	(0.078)	0.008	0.013
285	23.75	0.07	0.021	(0.078)	0.008	0.013
286	23.83	0.07	0.021	(0.077)	0.008	0.013
287	23.92	0.07	0.021	(0.077)	0.008	0.013
288	24.00	0.07	0.021	(0.077)	0.008	0.013

(Loss Rate Not Used)

Sum =	100.0	Sum =	19.1
Flood volume =	Effective rainfall	1.59(In)	
times area	10.9(Ac.)/[((In)/(Ft.))] =	1.4(Ac.Ft)	
Total soil loss =	0.97(In)		
Total soil loss =	0.885(Ac.Ft)		
Total rainfall =	2.56(In)		
Flood volume =	62916.0 Cubic Feet		
Total soil loss =	38561.2 Cubic Feet		

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Peak flow rate of this hydrograph = 2.377(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0004		0.06	Q			
0+10	0.0013		0.13	Q			
0+15	0.0023		0.14	Q			
0+20	0.0035		0.17	Q			
0+25	0.0049		0.21	Q			
0+30	0.0063		0.21	Q			
0+35	0.0078		0.21	Q			
0+40	0.0092		0.21	Q			
0+45	0.0107		0.21	Q			
0+50	0.0123		0.24	Q			
0+55	0.0142		0.28	VQ			
1+ 0	0.0161		0.28	VQ			
1+ 5	0.0178		0.25	Q			
1+10	0.0193		0.21	Q			
1+15	0.0208		0.21	Q			
1+20	0.0222		0.21	Q			
1+25	0.0237		0.21	Q			
1+30	0.0251		0.21	Q			
1+35	0.0265		0.21	Q			
1+40	0.0280		0.21	Q			
1+45	0.0294		0.21	Q			

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1+50	0.0311	0.24	Q			
1+55	0.0330	0.28	VQ			
2+ 0	0.0349	0.28	VQ			
2+ 5	0.0368	0.28	Q			
2+10	0.0388	0.28	Q			
2+15	0.0407	0.28	Q			
2+20	0.0426	0.28	|Q	|	|	|
2+25	0.0445	0.28	|Q	|	|	|
2+30	0.0465	0.28	|Q	|	|	|
2+35	0.0486	0.31	|Q	|	|	|
2+40	0.0510	0.35	|Q	|	|	|
2+45	0.0534	0.35	|Q	|	|	|
2+50	0.0558	0.35	|Q	|	|	|
2+55	0.0582	0.35	|Q	|	|	|
3+ 0	0.0606	0.35	|Q	|	|	|
3+ 5	0.0630	0.35	|Q	|	|	|
3+10	0.0654	0.35	|Q	|	|	|
3+15	0.0678	0.35	|Q	|	|	|
3+20	0.0702	0.35	|Q	|	|	|
3+25	0.0726	0.35	|QV	|	|	|
3+30	0.0750	0.35	|QV	|	|	|
3+35	0.0775	0.35	|QV	|	|	|
3+40	0.0799	0.35	|QV	|	|	|
3+45	0.0823	0.35	|QV	|	|	|
3+50	0.0849	0.38	|QV	|	|	|
3+55	0.0877	0.41	|QV	|	|	|
4+ 0	0.0906	0.42	|QV	|	|	|
4+ 5	0.0935	0.42	|QV	|	|	|
4+10	0.0964	0.42	|QV	|	|	|
4+15	0.0993	0.42	|QV	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+20	0.1024	0.45	|QV	|	|	|
4+25	0.1057	0.48	|QV	|	|	|
4+30	0.1091	0.49	|Q V	|	|	|
4+35	0.1125	0.49	|Q V	|	|	|
4+40	0.1158	0.49	|Q V	|	|	|
4+45	0.1192	0.49	|Q V	|	|	|
4+50	0.1228	0.52	| QV	|	|	|
4+55	0.1266	0.55	| QV	|	|	|
5+ 0	0.1305	0.56	| QV	|	|	|
5+ 5	0.1339	0.50	|Q V	|	|	|
5+10	0.1368	0.43	|Q V	|	|	|
5+15	0.1397	0.42	|Q V	|	|	|
5+20	0.1428	0.45	|Q V	|	|	|
5+25	0.1462	0.48	|Q V	|	|	|
5+30	0.1496	0.49	|Q V	|	|	|
5+35	0.1531	0.52	| Q V	|	|	|
5+40	0.1570	0.55	| Q V	|	|	|
5+45	0.1608	0.56	| Q V	|	|	|
5+50	0.1647	0.56	| Q V	|	|	|
5+55	0.1685	0.56	| Q V	|	|	|
6+ 0	0.1724	0.56	| Q V	|	|	|
6+ 5	0.1764	0.59	| Q V	|	|	|
6+10	0.1807	0.62	| Q V	|	|	|
6+15	0.1851	0.63	| Q V	|	|	|
6+20	0.1894	0.63	| Q V	|	|	|
6+25	0.1937	0.63	| Q V	|	|	|
6+30	0.1981	0.63	| Q V	|	|	|
6+35	0.2026	0.66	| Q V	|	|	|
6+40	0.2074	0.69	| Q V	|	|	|
6+45	0.2122	0.70	| Q V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+50	0.2170	0.70	|	Q	V	|	|	|
6+55	0.2218	0.70	|	Q	V	|	|	|
7+ 0	0.2266	0.70	|	Q	V	|	|	|
7+ 5	0.2315	0.70	|	Q	V	|	|	|
7+10	0.2363	0.70	|	Q	V	|	|	|
7+15	0.2411	0.70	|	Q	V	|	|	|
7+20	0.2461	0.73	|	Q	V	|	|	|
7+25	0.2514	0.76	|	Q	V	|	|	|
7+30	0.2567	0.77	|	Q	V	|	|	|
7+35	0.2622	0.80	|	Q	V	|	|	|
7+40	0.2679	0.83	|	Q	V	|	|	|
7+45	0.2737	0.84	|	Q	V	|	|	|
7+50	0.2797	0.87	|	Q	V	|	|	|
7+55	0.2859	0.90	|	Q	V	|	|	|
8+ 0	0.2922	0.91	|	Q	V	|	|	|
8+ 5	0.2989	0.97	|	Q	V	|	|	|
8+10	0.3060	1.04	|	Q	V	|	|	|
8+15	0.3132	1.05	|	Q	V	|	|	|
8+20	0.3205	1.05	|	Q	V	|	|	|
8+25	0.3277	1.05	|	Q	V	|	|	|
8+30	0.3349	1.05	|	Q	V	|	|	|
8+35	0.3423	1.08	|	Q	V	|	|	|
8+40	0.3500	1.11	|	Q	V	|	|	|
8+45	0.3577	1.12	|	Q	V	|	|	|
8+50	0.3656	1.15	|	Q	V	|	|	|
8+55	0.3738	1.18	|	Q	V	|	|	|
9+ 0	0.3820	1.19	|	Q	V	|	|	|
9+ 5	0.3906	1.25	|	Q	V	|	|	|
9+10	0.3997	1.32	|	Q	|V	|	|	|
9+15	0.4088	1.33	|	Q	|V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

9+20	0.4182	1.36	Q	V	
9+25	0.4278	1.39	Q	V	
9+30	0.4374	1.40	Q	V	
9+35	0.4472	1.43	Q	V	
9+40	0.4573	1.46	Q	V	
9+45	0.4674	1.47	Q	V	
9+50	0.4778	1.50	Q	V	
9+55	0.4883	1.53	Q	V	
10+ 0	0.4989	1.54	Q	V	
10+ 5	0.5080	1.32	Q	V	
10+10	0.5154	1.08	Q	V	
10+15	0.5227	1.05	Q	V	
10+20	0.5299	1.05	Q	V	
10+25	0.5371	1.05	Q	V	
10+30	0.5443	1.05	Q	V	
10+35	0.5526	1.21	Q	V	
10+40	0.5621	1.38	Q	V	
10+45	0.5717	1.40	Q	V	
10+50	0.5814	1.40	Q	V	
10+55	0.5910	1.40	Q	V	
11+ 0	0.6006	1.40	Q	V	
11+ 5	0.6100	1.37	Q	V	
11+10	0.6192	1.33	Q	V	
11+15	0.6284	1.33	Q	V	
11+20	0.6375	1.33	Q	V	
11+25	0.6466	1.33	Q	V	
11+30	0.6558	1.33	Q	V	
11+35	0.6645	1.27	Q	V	
11+40	0.6728	1.20	Q	V	
11+45	0.6810	1.19	Q	V	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

11+50	0.6894	1.22	Q	V
11+55	0.6980	1.25	Q	V
12+ 0	0.7066	1.26	Q	V
12+ 5	0.7168	1.48	Q	V
12+10	0.7286	1.72	Q	V
12+15	0.7407	1.74	Q	V
12+20	0.7529	1.78	Q	V
12+25	0.7654	1.81	Q	V
12+30	0.7779	1.82	Q	V
12+35	0.7909	1.88	Q	V
12+40	0.8043	1.95	Q	V
12+45	0.8177	1.96	Q	V
12+50	0.8314	1.99	Q	V
12+55	0.8454	2.02	Q	V
13+ 0	0.8593	2.03	Q	V
13+ 5	0.8744	2.18	Q	V
13+10	0.8906	2.35	Q	V
13+15	0.9069	2.37	Q	V
13+20	0.9233	2.38	Q	V
13+25	0.9397	2.38	Q	V
13+30	0.9560	2.38	Q	V
13+35	0.9700	2.03	Q	V
13+40	0.9815	1.66	Q	V
13+45	0.9926	1.61	Q	V
13+50	1.0036	1.61	Q	V
13+55	1.0147	1.61	Q	V
14+ 0	1.0258	1.61	Q	V
14+ 5	1.0377	1.73	Q	V
14+10	1.0506	1.87	Q	V
14+15	1.0636	1.89	Q	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

14+20	1.0764	1.86	|	Q	|	|	V|
14+25	1.0889	1.82	|	Q	|	|	V
14+30	1.1014	1.82	|	Q	|	|	V
14+35	1.1140	1.82	|	Q	|	|	V
14+40	1.1265	1.82	|	Q	|	|	|V
14+45	1.1390	1.82	|	Q	|	|	|V
14+50	1.1513	1.79	|	Q	|	|	|V
14+55	1.1634	1.75	|	Q	|	|	| V
15+ 0	1.1754	1.75	|	Q	|	|	| V
15+ 5	1.1872	1.72	|	Q	|	|	| V
15+10	1.1988	1.68	|	Q	|	|	| V
15+15	1.2104	1.68	|	Q	|	|	| V
15+20	1.2217	1.65	|	Q	|	|	| V
15+25	1.2328	1.61	|	Q	|	|	| V
15+30	1.2439	1.61	|	Q	|	|	| V
15+35	1.2541	1.48	|	Q	|	|	| V
15+40	1.2634	1.35	|	Q	|	|	| V
15+45	1.2725	1.33	|	Q	|	|	| V
15+50	1.2817	1.33	|	Q	|	|	| V
15+55	1.2908	1.33	|	Q	|	|	| V
16+ 0	1.3000	1.33	|	Q	|	|	| V
16+ 5	1.3059	0.86	|	Q	|	|	| V
16+10	1.3083	0.35	|	Q	|	|	| V
16+15	1.3103	0.29	|	Q	|	|	| V
16+20	1.3122	0.28	|	Q	|	|	| V
16+25	1.3141	0.28	|	Q	|	|	| V
16+30	1.3160	0.28	|	Q	|	|	| V
16+35	1.3178	0.25	|	Q	|	|	| V
16+40	1.3192	0.21	|	Q	|	|	| V
16+45	1.3207	0.21	|	Q	|	|	| V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

16+50	1.3221	0.21	Q	|	|	|	V
16+55	1.3236	0.21	Q	|	|	|	V
17+ 0	1.3250	0.21	Q	|	|	|	V
17+ 5	1.3269	0.27	|Q	|	|	|	V
17+10	1.3292	0.34	|Q	|	|	|	V
17+15	1.3316	0.35	|Q	|	|	|	V
17+20	1.3340	0.35	|Q	|	|	|	V
17+25	1.3364	0.35	|Q	|	|	|	V
17+30	1.3389	0.35	|Q	|	|	|	V
17+35	1.3413	0.35	|Q	|	|	|	V
17+40	1.3437	0.35	|Q	|	|	|	V
17+45	1.3461	0.35	|Q	|	|	|	V
17+50	1.3483	0.32	|Q	|	|	|	V
17+55	1.3502	0.28	|Q	|	|	|	V
18+ 0	1.3522	0.28	|Q	|	|	|	V
18+ 5	1.3541	0.28	|Q	|	|	|	V
18+10	1.3560	0.28	|Q	|	|	|	V
18+15	1.3579	0.28	|Q	|	|	|	V
18+20	1.3599	0.28	|Q	|	|	|	V
18+25	1.3618	0.28	|Q	|	|	|	V
18+30	1.3637	0.28	|Q	|	|	|	V
18+35	1.3654	0.25	Q	|	|	|	V
18+40	1.3669	0.21	Q	|	|	|	V
18+45	1.3683	0.21	Q	|	|	|	V
18+50	1.3696	0.18	Q	|	|	|	V
18+55	1.3706	0.14	Q	|	|	|	V
19+ 0	1.3715	0.14	Q	|	|	|	V
19+ 5	1.3727	0.17	Q	|	|	|	V
19+10	1.3741	0.21	Q	|	|	|	V
19+15	1.3756	0.21	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

19+20	1.3772	0.24	Q	|	|	|	V
19+25	1.3791	0.28	|Q	|	|	|	V
19+30	1.3810	0.28	|Q	|	|	|	V
19+35	1.3828	0.25	Q	|	|	|	V
19+40	1.3842	0.21	Q	|	|	|	V
19+45	1.3857	0.21	Q	|	|	|	V
19+50	1.3869	0.18	Q	|	|	|	V
19+55	1.3879	0.14	Q	|	|	|	V
20+ 0	1.3889	0.14	Q	|	|	|	V
20+ 5	1.3900	0.17	Q	|	|	|	V
20+10	1.3915	0.21	Q	|	|	|	V
20+15	1.3929	0.21	Q	|	|	|	V
20+20	1.3943	0.21	Q	|	|	|	V
20+25	1.3958	0.21	Q	|	|	|	V
20+30	1.3972	0.21	Q	|	|	|	V
20+35	1.3987	0.21	Q	|	|	|	V
20+40	1.4001	0.21	Q	|	|	|	V
20+45	1.4016	0.21	Q	|	|	|	V
20+50	1.4028	0.18	Q	|	|	|	V
20+55	1.4038	0.14	Q	|	|	|	V
21+ 0	1.4048	0.14	Q	|	|	|	V
21+ 5	1.4059	0.17	Q	|	|	|	V
21+10	1.4073	0.21	Q	|	|	|	V
21+15	1.4088	0.21	Q	|	|	|	V
V| 21+20	1.4100	0.18	Q	|	|	|	V
V| 21+25	1.4110	0.14	Q	|	|	|	V
V| 21+30	1.4120	0.14	Q	|	|	|	V
V| 21+35	1.4132	0.17	Q	|	|	|	V
V| 21+40	1.4146	0.21	Q	|	|	|	V
V| 21+45	1.4160	0.21	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	1.4172	0.18	Q	|	|	|
V|	21+55	1.4182	0.14	Q	|	|	|
V|	22+ 0	1.4192	0.14	Q	|	|	|
V|	22+ 5	1.4204	0.17	Q	|	|	|
V|	22+10	1.4218	0.21	Q	|	|	|
V|	22+15	1.4232	0.21	Q	|	|	|
V|	22+20	1.4245	0.18	Q	|	|	|
V|	22+25	1.4255	0.14	Q	|	|	|
V|	22+30	1.4264	0.14	Q	|	|	|
V|	22+35	1.4274	0.14	Q	|	|	|
V|	22+40	1.4283	0.14	Q	|	|	|
V|	22+45	1.4293	0.14	Q	|	|	|
V|	22+50	1.4303	0.14	Q	|	|	|
V|	22+55	1.4312	0.14	Q	|	|	|
V|	23+ 0	1.4322	0.14	Q	|	|	|
V|	23+ 5	1.4332	0.14	Q	|	|	|
V|	23+10	1.4341	0.14	Q	|	|	|
V|	23+15	1.4351	0.14	Q	|	|	|
V|	23+20	1.4360	0.14	Q	|	|	|
V|	23+25	1.4370	0.14	Q	|	|	|
V|	23+30	1.4380	0.14	Q	|	|	|
V|	23+35	1.4389	0.14	Q	|	|	|
V|	23+40	1.4399	0.14	Q	|	|	|
V|	23+45	1.4409	0.14	Q	|	|	|
V|	23+50	1.4418	0.14	Q	|	|	|
V|	23+55	1.4428	0.14	Q	|	|	|
V|	24+ 0	1.4438	0.14	Q	|	|	|
V|	24+ 5	1.4443	0.08	Q	|	|	|
V|	24+10	1.4443	0.01	Q	|	|	|
V|	24+15	1.4444	0.00	Q	|	|	|
V							

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post2410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.

Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)

Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.

Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.024	(0.274)	0.009	0.015
2	0.17	0.07	0.024	(0.273)	0.009	0.015
3	0.25	0.07	0.024	(0.272)	0.009	0.015
4	0.33	0.10	0.037	(0.271)	0.014	0.023
5	0.42	0.10	0.037	(0.270)	0.014	0.023
6	0.50	0.10	0.037	(0.269)	0.014	0.023
7	0.58	0.10	0.037	(0.268)	0.014	0.023
8	0.67	0.10	0.037	(0.267)	0.014	0.023
9	0.75	0.10	0.037	(0.266)	0.014	0.023
10	0.83	0.13	0.049	(0.265)	0.019	0.030
11	0.92	0.13	0.049	(0.264)	0.019	0.030
12	1.00	0.13	0.049	(0.263)	0.019	0.030
13	1.08	0.10	0.037	(0.262)	0.014	0.023
14	1.17	0.10	0.037	(0.261)	0.014	0.023
15	1.25	0.10	0.037	(0.260)	0.014	0.023
16	1.33	0.10	0.037	(0.259)	0.014	0.023
17	1.42	0.10	0.037	(0.258)	0.014	0.023
18	1.50	0.10	0.037	(0.257)	0.014	0.023
19	1.58	0.10	0.037	(0.255)	0.014	0.023
20	1.67	0.10	0.037	(0.254)	0.014	0.023
21	1.75	0.10	0.037	(0.253)	0.014	0.023
22	1.83	0.13	0.049	(0.252)	0.019	0.030
23	1.92	0.13	0.049	(0.251)	0.019	0.030
24	2.00	0.13	0.049	(0.250)	0.019	0.030
25	2.08	0.13	0.049	(0.249)	0.019	0.030
26	2.17	0.13	0.049	(0.248)	0.019	0.030
27	2.25	0.13	0.049	(0.247)	0.019	0.030
28	2.33	0.13	0.049	(0.246)	0.019	0.030
29	2.42	0.13	0.049	(0.245)	0.019	0.030
30	2.50	0.13	0.049	(0.244)	0.019	0.030
31	2.58	0.17	0.061	(0.243)	0.023	0.038
32	2.67	0.17	0.061	(0.242)	0.023	0.038
33	2.75	0.17	0.061	(0.241)	0.023	0.038
34	2.83	0.17	0.061	(0.240)	0.023	0.038
35	2.92	0.17	0.061	(0.239)	0.023	0.038
36	3.00	0.17	0.061	(0.238)	0.023	0.038
37	3.08	0.17	0.061	(0.237)	0.023	0.038
38	3.17	0.17	0.061	(0.236)	0.023	0.038
39	3.25	0.17	0.061	(0.235)	0.023	0.038
40	3.33	0.17	0.061	(0.234)	0.023	0.038
41	3.42	0.17	0.061	(0.233)	0.023	0.038
42	3.50	0.17	0.061	(0.232)	0.023	0.038
43	3.58	0.17	0.061	(0.232)	0.023	0.038
44	3.67	0.17	0.061	(0.231)	0.023	0.038
45	3.75	0.17	0.061	(0.230)	0.023	0.038
46	3.83	0.20	0.073	(0.229)	0.028	0.045
47	3.92	0.20	0.073	(0.228)	0.028	0.045
48	4.00	0.20	0.073	(0.227)	0.028	0.045
49	4.08	0.20	0.073	(0.226)	0.028	0.045
50	4.17	0.20	0.073	(0.225)	0.028	0.045
51	4.25	0.20	0.073	(0.224)	0.028	0.045
52	4.33	0.23	0.085	(0.223)	0.032	0.053
53	4.42	0.23	0.085	(0.222)	0.032	0.053
54	4.50	0.23	0.085	(0.221)	0.032	0.053
55	4.58	0.23	0.085	(0.220)	0.032	0.053
56	4.67	0.23	0.085	(0.219)	0.032	0.053
57	4.75	0.23	0.085	(0.218)	0.032	0.053
58	4.83	0.27	0.097	(0.217)	0.037	0.060

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

59	4.92	0.27	0.097	(0.216)	0.037	0.060
60	5.00	0.27	0.097	(0.215)	0.037	0.060
61	5.08	0.20	0.073	(0.214)	0.028	0.045
62	5.17	0.20	0.073	(0.213)	0.028	0.045
63	5.25	0.20	0.073	(0.212)	0.028	0.045
64	5.33	0.23	0.085	(0.212)	0.032	0.053
65	5.42	0.23	0.085	(0.211)	0.032	0.053
66	5.50	0.23	0.085	(0.210)	0.032	0.053
67	5.58	0.27	0.097	(0.209)	0.037	0.060
68	5.67	0.27	0.097	(0.208)	0.037	0.060
69	5.75	0.27	0.097	(0.207)	0.037	0.060
70	5.83	0.27	0.097	(0.206)	0.037	0.060
71	5.92	0.27	0.097	(0.205)	0.037	0.060
72	6.00	0.27	0.097	(0.204)	0.037	0.060
73	6.08	0.30	0.110	(0.203)	0.042	0.068
74	6.17	0.30	0.110	(0.202)	0.042	0.068
75	6.25	0.30	0.110	(0.202)	0.042	0.068
76	6.33	0.30	0.110	(0.201)	0.042	0.068
77	6.42	0.30	0.110	(0.200)	0.042	0.068
78	6.50	0.30	0.110	(0.199)	0.042	0.068
79	6.58	0.33	0.122	(0.198)	0.046	0.076
80	6.67	0.33	0.122	(0.197)	0.046	0.076
81	6.75	0.33	0.122	(0.196)	0.046	0.076
82	6.83	0.33	0.122	(0.195)	0.046	0.076
83	6.92	0.33	0.122	(0.194)	0.046	0.076
84	7.00	0.33	0.122	(0.193)	0.046	0.076
85	7.08	0.33	0.122	(0.193)	0.046	0.076
86	7.17	0.33	0.122	(0.192)	0.046	0.076
87	7.25	0.33	0.122	(0.191)	0.046	0.076
88	7.33	0.37	0.134	(0.190)	0.051	0.083
89	7.42	0.37	0.134	(0.189)	0.051	0.083
90	7.50	0.37	0.134	(0.188)	0.051	0.083
91	7.58	0.40	0.146	(0.187)	0.056	0.091
92	7.67	0.40	0.146	(0.187)	0.056	0.091
93	7.75	0.40	0.146	(0.186)	0.056	0.091
94	7.83	0.43	0.158	(0.185)	0.060	0.098
95	7.92	0.43	0.158	(0.184)	0.060	0.098
96	8.00	0.43	0.158	(0.183)	0.060	0.098
97	8.08	0.50	0.183	(0.182)	0.069	0.113
98	8.17	0.50	0.183	(0.181)	0.069	0.113
99	8.25	0.50	0.183	(0.181)	0.069	0.113
100	8.33	0.50	0.183	(0.180)	0.069	0.113
101	8.42	0.50	0.183	(0.179)	0.069	0.113
102	8.50	0.50	0.183	(0.178)	0.069	0.113
103	8.58	0.53	0.195	(0.177)	0.074	0.121
104	8.67	0.53	0.195	(0.176)	0.074	0.121
105	8.75	0.53	0.195	(0.176)	0.074	0.121
106	8.83	0.57	0.207	(0.175)	0.079	0.128
107	8.92	0.57	0.207	(0.174)	0.079	0.128
108	9.00	0.57	0.207	(0.173)	0.079	0.128
109	9.08	0.63	0.231	(0.172)	0.088	0.143
110	9.17	0.63	0.231	(0.171)	0.088	0.143
111	9.25	0.63	0.231	(0.171)	0.088	0.143
112	9.33	0.67	0.244	(0.170)	0.093	0.151
113	9.42	0.67	0.244	(0.169)	0.093	0.151
114	9.50	0.67	0.244	(0.168)	0.093	0.151
115	9.58	0.70	0.256	(0.167)	0.097	0.159
116	9.67	0.70	0.256	(0.167)	0.097	0.159
117	9.75	0.70	0.256	(0.166)	0.097	0.159
118	9.83	0.73	0.268	(0.165)	0.102	0.166

119	9.92	0.73	0.268	(0.164)	0.102	0.166
120	10.00	0.73	0.268	(0.163)	0.102	0.166
121	10.08	0.50	0.183	(0.163)	0.069	0.113
122	10.17	0.50	0.183	(0.162)	0.069	0.113
123	10.25	0.50	0.183	(0.161)	0.069	0.113
124	10.33	0.50	0.183	(0.160)	0.069	0.113
125	10.42	0.50	0.183	(0.159)	0.069	0.113
126	10.50	0.50	0.183	(0.159)	0.069	0.113
127	10.58	0.67	0.244	(0.158)	0.093	0.151
128	10.67	0.67	0.244	(0.157)	0.093	0.151
129	10.75	0.67	0.244	(0.156)	0.093	0.151
130	10.83	0.67	0.244	(0.156)	0.093	0.151
131	10.92	0.67	0.244	(0.155)	0.093	0.151
132	11.00	0.67	0.244	(0.154)	0.093	0.151
133	11.08	0.63	0.231	(0.153)	0.088	0.143
134	11.17	0.63	0.231	(0.153)	0.088	0.143
135	11.25	0.63	0.231	(0.152)	0.088	0.143
136	11.33	0.63	0.231	(0.151)	0.088	0.143
137	11.42	0.63	0.231	(0.150)	0.088	0.143
138	11.50	0.63	0.231	(0.150)	0.088	0.143
139	11.58	0.57	0.207	(0.149)	0.079	0.128
140	11.67	0.57	0.207	(0.148)	0.079	0.128
141	11.75	0.57	0.207	(0.147)	0.079	0.128
142	11.83	0.60	0.219	(0.147)	0.083	0.136
143	11.92	0.60	0.219	(0.146)	0.083	0.136
144	12.00	0.60	0.219	(0.145)	0.083	0.136
145	12.08	0.83	0.304	(0.144)	0.116	0.189
146	12.17	0.83	0.304	(0.144)	0.116	0.189
147	12.25	0.83	0.304	(0.143)	0.116	0.189
148	12.33	0.87	0.317	(0.142)	0.120	0.196
149	12.42	0.87	0.317	(0.142)	0.120	0.196
150	12.50	0.87	0.317	(0.141)	0.120	0.196
151	12.58	0.93	0.341	(0.140)	0.130	0.211
152	12.67	0.93	0.341	(0.139)	0.130	0.211
153	12.75	0.93	0.341	(0.139)	0.130	0.211
154	12.83	0.97	0.353	(0.138)	0.134	0.219
155	12.92	0.97	0.353	(0.137)	0.134	0.219
156	13.00	0.97	0.353	(0.137)	0.134	0.219
157	13.08	1.13	0.414	0.136 (0.157)		0.278
158	13.17	1.13	0.414	0.135 (0.157)		0.279
159	13.25	1.13	0.414	0.135 (0.157)		0.280
160	13.33	1.13	0.414	0.134 (0.157)		0.280
161	13.42	1.13	0.414	0.133 (0.157)		0.281
162	13.50	1.13	0.414	0.133 (0.157)		0.282
163	13.58	0.77	0.280	(0.132)	0.106	0.174
164	13.67	0.77	0.280	(0.131)	0.106	0.174
165	13.75	0.77	0.280	(0.130)	0.106	0.174
166	13.83	0.77	0.280	(0.130)	0.106	0.174
167	13.92	0.77	0.280	(0.129)	0.106	0.174
168	14.00	0.77	0.280	(0.129)	0.106	0.174
169	14.08	0.90	0.329	(0.128)	0.125	0.204
170	14.17	0.90	0.329	(0.127)	0.125	0.204
171	14.25	0.90	0.329	(0.127)	0.125	0.204
172	14.33	0.87	0.317	(0.126)	0.120	0.196
173	14.42	0.87	0.317	(0.125)	0.120	0.196
174	14.50	0.87	0.317	(0.125)	0.120	0.196
175	14.58	0.87	0.317	(0.124)	0.120	0.196
176	14.67	0.87	0.317	(0.123)	0.120	0.196
177	14.75	0.87	0.317	(0.123)	0.120	0.196
178	14.83	0.83	0.304	(0.122)	0.116	0.189

179	14.92	0.83	0.304	(0.121)	0.116	0.189
180	15.00	0.83	0.304	(0.121)	0.116	0.189
181	15.08	0.80	0.292	(0.120)	0.111	0.181
182	15.17	0.80	0.292	(0.120)	0.111	0.181
183	15.25	0.80	0.292	(0.119)	0.111	0.181
184	15.33	0.77	0.280	(0.118)	0.106	0.174
185	15.42	0.77	0.280	(0.118)	0.106	0.174
186	15.50	0.77	0.280	(0.117)	0.106	0.174
187	15.58	0.63	0.231	(0.117)	0.088	0.143
188	15.67	0.63	0.231	(0.116)	0.088	0.143
189	15.75	0.63	0.231	(0.115)	0.088	0.143
190	15.83	0.63	0.231	(0.115)	0.088	0.143
191	15.92	0.63	0.231	(0.114)	0.088	0.143
192	16.00	0.63	0.231	(0.114)	0.088	0.143
193	16.08	0.13	0.049	(0.113)	0.019	0.030
194	16.17	0.13	0.049	(0.112)	0.019	0.030
195	16.25	0.13	0.049	(0.112)	0.019	0.030
196	16.33	0.13	0.049	(0.111)	0.019	0.030
197	16.42	0.13	0.049	(0.111)	0.019	0.030
198	16.50	0.13	0.049	(0.110)	0.019	0.030
199	16.58	0.10	0.037	(0.110)	0.014	0.023
200	16.67	0.10	0.037	(0.109)	0.014	0.023
201	16.75	0.10	0.037	(0.109)	0.014	0.023
202	16.83	0.10	0.037	(0.108)	0.014	0.023
203	16.92	0.10	0.037	(0.107)	0.014	0.023
204	17.00	0.10	0.037	(0.107)	0.014	0.023
205	17.08	0.17	0.061	(0.106)	0.023	0.038
206	17.17	0.17	0.061	(0.106)	0.023	0.038
207	17.25	0.17	0.061	(0.105)	0.023	0.038
208	17.33	0.17	0.061	(0.105)	0.023	0.038
209	17.42	0.17	0.061	(0.104)	0.023	0.038
210	17.50	0.17	0.061	(0.104)	0.023	0.038
211	17.58	0.17	0.061	(0.103)	0.023	0.038
212	17.67	0.17	0.061	(0.103)	0.023	0.038
213	17.75	0.17	0.061	(0.102)	0.023	0.038
214	17.83	0.13	0.049	(0.102)	0.019	0.030
215	17.92	0.13	0.049	(0.101)	0.019	0.030
216	18.00	0.13	0.049	(0.101)	0.019	0.030
217	18.08	0.13	0.049	(0.100)	0.019	0.030
218	18.17	0.13	0.049	(0.100)	0.019	0.030
219	18.25	0.13	0.049	(0.099)	0.019	0.030
220	18.33	0.13	0.049	(0.099)	0.019	0.030
221	18.42	0.13	0.049	(0.098)	0.019	0.030
222	18.50	0.13	0.049	(0.098)	0.019	0.030
223	18.58	0.10	0.037	(0.097)	0.014	0.023
224	18.67	0.10	0.037	(0.097)	0.014	0.023
225	18.75	0.10	0.037	(0.096)	0.014	0.023
226	18.83	0.07	0.024	(0.096)	0.009	0.015
227	18.92	0.07	0.024	(0.095)	0.009	0.015
228	19.00	0.07	0.024	(0.095)	0.009	0.015
229	19.08	0.10	0.037	(0.094)	0.014	0.023
230	19.17	0.10	0.037	(0.094)	0.014	0.023
231	19.25	0.10	0.037	(0.094)	0.014	0.023
232	19.33	0.13	0.049	(0.093)	0.019	0.030
233	19.42	0.13	0.049	(0.093)	0.019	0.030
234	19.50	0.13	0.049	(0.092)	0.019	0.030
235	19.58	0.10	0.037	(0.092)	0.014	0.023
236	19.67	0.10	0.037	(0.091)	0.014	0.023
237	19.75	0.10	0.037	(0.091)	0.014	0.023
238	19.83	0.07	0.024	(0.091)	0.009	0.015

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 Peak flow rate of this hydrograph = 3.090(CFS)

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24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

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 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0005	0.07	Q			
0+10	0.0016	0.16	Q			
0+15	0.0027	0.16	Q			
0+20	0.0041	0.20	Q			
0+25	0.0058	0.24	Q			
0+30	0.0075	0.25	Q			
0+35	0.0092	0.25	Q			
0+40	0.0109	0.25	Q			
0+45	0.0126	0.25	Q			
0+50	0.0146	0.29	VQ			
0+55	0.0169	0.33	VQ			
1+ 0	0.0191	0.33	VQ			
1+ 5	0.0212	0.29	VQ			
1+10	0.0229	0.25	VQ			
1+15	0.0246	0.25	Q			
1+20	0.0264	0.25	Q			
1+25	0.0281	0.25	Q			
1+30	0.0298	0.25	Q			
1+35	0.0315	0.25	Q			
1+40	0.0332	0.25	Q			
1+45	0.0349	0.25	Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+50	0.0369	0.29	VQ	|	|	|
1+55	0.0392	0.33	VQ	|	|	|
2+ 0	0.0414	0.33	VQ	|	|	|
2+ 5	0.0437	0.33	|Q	|	|	|
2+10	0.0460	0.33	|Q	|	|	|
2+15	0.0483	0.33	|Q	|	|	|
2+20	0.0506	0.33	|Q	|	|	|
2+25	0.0529	0.33	|Q	|	|	|
2+30	0.0552	0.33	|Q	|	|	|
2+35	0.0577	0.37	|Q	|	|	|
2+40	0.0605	0.41	|Q	|	|	|
2+45	0.0634	0.41	|Q	|	|	|
2+50	0.0662	0.41	|Q	|	|	|
2+55	0.0691	0.41	|Q	|	|	|
3+ 0	0.0719	0.41	|Q	|	|	|
3+ 5	0.0748	0.41	|Q	|	|	|
3+10	0.0777	0.41	|Q	|	|	|
3+15	0.0805	0.41	|Q	|	|	|
3+20	0.0834	0.41	|Q	|	|	|
3+25	0.0862	0.41	|Q	|	|	|
3+30	0.0891	0.41	|QV	|	|	|
3+35	0.0920	0.41	|QV	|	|	|
3+40	0.0948	0.41	|QV	|	|	|
3+45	0.0977	0.41	|QV	|	|	|
3+50	0.1008	0.45	|QV	|	|	|
3+55	0.1042	0.49	|QV	|	|	|
4+ 0	0.1076	0.50	|QV	|	|	|
4+ 5	0.1110	0.50	|QV	|	|	|
4+10	0.1145	0.50	|QV	|	|	|
4+15	0.1179	0.50	|QV	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+20	0.1216	0.54	| Q	|	|	|
4+25	0.1255	0.58	| Q	|	|	|
4+30	0.1295	0.58	| QV	|	|	|
4+35	0.1335	0.58	| QV	|	|	|
4+40	0.1375	0.58	| QV	|	|	|
4+45	0.1415	0.58	| QV	|	|	|
4+50	0.1458	0.62	| QV	|	|	|
4+55	0.1503	0.66	| QV	|	|	|
5+ 0	0.1549	0.66	| QV	|	|	|
5+ 5	0.1590	0.59	| QV	|	|	|
5+10	0.1625	0.51	| QV	|	|	|
5+15	0.1659	0.50	| Q V	|	|	|
5+20	0.1696	0.54	| QV	|	|	|
5+25	0.1736	0.58	| Q V	|	|	|
5+30	0.1775	0.58	| Q V	|	|	|
5+35	0.1818	0.62	| Q V	|	|	|
5+40	0.1863	0.66	| Q V	|	|	|
5+45	0.1909	0.66	| Q V	|	|	|
5+50	0.1955	0.66	| Q V	|	|	|
5+55	0.2001	0.66	| Q V	|	|	|
6+ 0	0.2046	0.66	| Q V	|	|	|
6+ 5	0.2095	0.70	| Q V	|	|	|
6+10	0.2146	0.74	| Q V	|	|	|
6+15	0.2197	0.75	| Q V	|	|	|
6+20	0.2248	0.75	| Q V	|	|	|
6+25	0.2300	0.75	| Q V	|	|	|
6+30	0.2351	0.75	| Q V	|	|	|
6+35	0.2405	0.78	| Q V	|	|	|
6+40	0.2462	0.82	| Q V	|	|	|
6+45	0.2519	0.83	| Q V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

6+50	0.2576	0.83	|	Q V	|		|
6+55	0.2634	0.83	|	Q V	|		|
7+ 0	0.2691	0.83	|	Q V	|		|
7+ 5	0.2748	0.83	|	Q V	|		|
7+10	0.2805	0.83	|	Q V	|		|
7+15	0.2862	0.83	|	Q V	|		|
7+20	0.2922	0.87	|	Q V	|		|
7+25	0.2984	0.91	|	Q V	|		|
7+30	0.3047	0.91	|	Q V	|		|
7+35	0.3113	0.95	|	Q V	|		|
7+40	0.3181	0.99	|	Q V	|		|
7+45	0.3249	1.00	|	Q V	|		|
7+50	0.3321	1.03	|	Q V	|		|
7+55	0.3395	1.07	|	Q V	|		|
8+ 0	0.3469	1.08	|	Q V	|		|
8+ 5	0.3548	1.15	|	Q V	|		|
8+10	0.3633	1.23	|	Q V	|		|
8+15	0.3719	1.24	|	Q V	|		|
8+20	0.3805	1.24	|	Q V	|		|
8+25	0.3890	1.24	|	Q V	|		|
8+30	0.3976	1.24	|	Q V	|		|
8+35	0.4064	1.28	|	Q V	|		|
8+40	0.4155	1.32	|	Q V	|		|
8+45	0.4247	1.33	|	Q V	|		|
8+50	0.4341	1.37	|	Q V	|		|
8+55	0.4438	1.41	|	Q V	|		|
9+ 0	0.4535	1.41	|	Q V	|		|
9+ 5	0.4637	1.49	|	Q V	|		|
9+10	0.4745	1.57	|	Q	|V		|
9+15	0.4853	1.58	|	Q	|V		|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+20	0.4965	1.61	Q	V	
9+25	0.5079	1.65	Q	V	
9+30	0.5193	1.66	Q	V	
9+35	0.5310	1.70	Q	V	
9+40	0.5429	1.74	Q	V	
9+45	0.5549	1.74	Q	V	
9+50	0.5672	1.78	Q	V	
9+55	0.5797	1.82	Q	V	
10+ 0	0.5923	1.83	Q	V	
10+ 5	0.6031	1.57	Q	V	
10+10	0.6119	1.28	Q	V	
10+15	0.6205	1.25	Q	V	
10+20	0.6291	1.24	Q	V	
10+25	0.6377	1.24	Q	V	
10+30	0.6463	1.24	Q	V	
10+35	0.6561	1.43	Q	V	
10+40	0.6674	1.63	Q	V	
10+45	0.6788	1.66	Q	V	
10+50	0.6902	1.66	Q	V	
10+55	0.7016	1.66	Q	V	
11+ 0	0.7131	1.66	Q	V	
11+ 5	0.7242	1.62	Q	V	
11+10	0.7351	1.58	Q	V	
11+15	0.7460	1.58	Q	V	
11+20	0.7569	1.58	Q	V	
11+25	0.7677	1.58	Q	V	
11+30	0.7786	1.58	Q	V	
11+35	0.7889	1.50	Q	V	
11+40	0.7987	1.42	Q	V	
11+45	0.8084	1.41	Q	V	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

11+50	0.8184	1.45	|	Q	|	V	|	|
11+55	0.8287	1.49	|	Q	|	V	|	|
12+ 0	0.8389	1.49	|	Q	|	V	|	|
12+ 5	0.8510	1.75	|	Q	|	V	|	|
12+10	0.8651	2.04	|	Q	|	V	|	|
12+15	0.8793	2.07	|	Q	|	V	|	|
12+20	0.8939	2.11	|	Q	|	V	|	|
12+25	0.9087	2.15	|	Q	|	V	|	|
12+30	0.9235	2.16	|	Q	|	V	|	|
12+35	0.9389	2.23	|	Q	|	V	|	|
12+40	0.9548	2.31	|	Q	|	V	|	|
12+45	0.9708	2.32	|	Q	|	V	|	|
12+50	0.9871	2.36	|	Q	|	V	|	|
12+55	1.0036	2.40	|	Q	|	V	|	|
13+ 0	1.0202	2.41	|	Q	|	V	|	|
13+ 5	1.0388	2.70	|	Q	|	V	|	|
13+10	1.0596	3.02	|	Q	|	V	|	|
13+15	1.0807	3.06	|	Q	|	V	|	|
13+20	1.1019	3.08	|	Q	|	V	|	|
13+25	1.1231	3.08	|	Q	|	V	|	|
13+30	1.1444	3.09	|	Q	|	V	|	|
13+35	1.1620	2.56	|	Q	|	V	|	|
13+40	1.1757	1.99	|	Q	|	V	|	|
13+45	1.1889	1.92	|	Q	|	V	|	|
13+50	1.2021	1.91	|	Q	|	V	|	|
13+55	1.2152	1.91		Q		V		
14+ 0	1.2283	1.91		Q		V		
14+ 5	1.2425	2.06		Q		V		
14+10	1.2578	2.22		Q		V		
14+15	1.2732	2.24		Q		V		

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14+20	1.2884	2.20		Q			V
14+25	1.3033	2.16		Q			V
14+30	1.3182	2.16		Q			V
14+35	1.3330	2.16		Q			V
14+40	1.3479	2.16		Q			V
14+45	1.3627	2.16	|	Q	|	|	|V
14+50	1.3773	2.12	|	Q	|	|	|V
14+55	1.3917	2.08	|	Q	|	|	| V
15+ 0	1.4060	2.08	|	Q	|	|	| V
15+ 5	1.4200	2.04	|	Q	|	|	| V
15+10	1.4338	2.00	|	Q	|	|	| V
15+15	1.4475	1.99	|	Q	|	|	| V
15+20	1.4609	1.95	|	Q	|	|	| V
15+25	1.4741	1.91	|	Q	|	|	| V
15+30	1.4873	1.91	|	Q	|	|	| V
15+35	1.4994	1.76	|	Q	|	|	| V
15+40	1.5104	1.60	|	Q	|	|	| V
15+45	1.5213	1.58	|	Q	|	|	| V
15+50	1.5321	1.58	|	Q	|	|	| V
15+55	1.5430	1.58	|	Q	|	|	| V
16+ 0	1.5539	1.58	|	Q	|	|	| V
16+ 5	1.5609	1.02	|	Q	|	|	| V
16+10	1.5637	0.41	|Q	|	|	|	| V
16+15	1.5661	0.34	|Q	|	|	|	| V
16+20	1.5684	0.33	|Q	|	|	|	| V
16+25	1.5707	0.33	|Q	|	|	|	| V
16+30	1.5729	0.33	|Q	|	|	|	| V
16+35	1.5750	0.29	|Q	|	|	|	| V
16+40	1.5767	0.25	|Q	|	|	|	| V
16+45	1.5784	0.25	Q	|	|	|	| V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

16+50	1.5802	0.25	Q	|	|	|	V
16+55	1.5819	0.25	Q	|	|	|	V
17+ 0	1.5836	0.25	Q	|	|	|	V
17+ 5	1.5858	0.32	|Q	|	|	|	V
17+10	1.5886	0.40	|Q	|	|	|	V
17+15	1.5914	0.41	|Q	|	|	|	V
17+20	1.5943	0.41	|Q	|	|	|	V
17+25	1.5972	0.41	|Q	|	|	|	V
17+30	1.6000	0.41	|Q	|	|	|	V
17+35	1.6029	0.41	|Q	|	|	|	V
17+40	1.6057	0.41	|Q	|	|	|	V
17+45	1.6086	0.41	|Q	|	|	|	V
17+50	1.6112	0.38	|Q	|	|	|	V
17+55	1.6135	0.34	|Q	|	|	|	V
18+ 0	1.6158	0.33	|Q	|	|	|	V
18+ 5	1.6181	0.33	|Q	|	|	|	V
18+10	1.6204	0.33	|Q	|	|	|	V
18+15	1.6227	0.33	|Q	|	|	|	V
18+20	1.6250	0.33	|Q	|	|	|	V
18+25	1.6272	0.33	|Q	|	|	|	V
18+30	1.6295	0.33	|Q	|	|	|	V
18+35	1.6316	0.29	|Q	|	|	|	V
18+40	1.6333	0.25	|Q	|	|	|	V
18+45	1.6350	0.25	Q	|	|	|	V
18+50	1.6365	0.21	Q	|	|	|	V
18+55	1.6377	0.17	Q	|	|	|	V
19+ 0	1.6388	0.17	Q	|	|	|	V
19+ 5	1.6402	0.20	Q	|	|	|	V
19+10	1.6419	0.24	Q	|	|	|	V
19+15	1.6436	0.25	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

19+20	1.6456	0.29	|Q	|	|	|	V
19+25	1.6478	0.33	|Q	|	|	|	V
19+30	1.6501	0.33	|Q	|	|	|	V
19+35	1.6521	0.29	|Q	|	|	|	V
19+40	1.6539	0.25	|Q	|	|	|	V
19+45	1.6556	0.25	Q	|	|	|	V
19+50	1.6571	0.21	Q	|	|	|	V
19+55	1.6582	0.17	Q	|	|	|	V
20+ 0	1.6594	0.17	Q	|	|	|	V
20+ 5	1.6608	0.20	Q	|	|	|	V
20+10	1.6625	0.24	Q	|	|	|	V
20+15	1.6642	0.25	Q	|	|	|	V
20+20	1.6659	0.25	Q	|	|	|	V
20+25	1.6676	0.25	Q	|	|	|	V
20+30	1.6693	0.25	Q	|	|	|	V
20+35	1.6710	0.25	Q	|	|	|	V
20+40	1.6728	0.25	Q	|	|	|	V
20+45	1.6745	0.25	Q	|	|	|	V
20+50	1.6759	0.21	Q	|	|	|	V
20+55	1.6771	0.17	Q	|	|	|	V
21+ 0	1.6783	0.17	Q	|	|	|	V
21+ 5	1.6797	0.20	Q	|	|	|	V
21+10	1.6813	0.24	Q	|	|	|	V
V| 21+15	1.6830	0.25	Q	|	|	|	V
V| 21+20	1.6845	0.21	Q	|	|	|	V
V| 21+25	1.6857	0.17	Q	|	|	|	V
V| 21+30	1.6868	0.17	Q	|	|	|	V
V| 21+35	1.6882	0.20	Q	|	|	|	V
V| 21+40	1.6899	0.24	Q	|	|	|	V
V| 21+45	1.6916	0.25	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	1.6931	0.21	Q	|	|	|
V|	21+55	1.6943	0.17	Q	|	|	|
V|	22+ 0	1.6954	0.17	Q	|	|	|
V|	22+ 5	1.6968	0.20	Q	|	|	|
V|	22+10	1.6985	0.24	Q	|	|	|
V|	22+15	1.7002	0.25	Q	|	|	|
V|	22+20	1.7016	0.21	Q	|	|	|
V|	22+25	1.7028	0.17	Q	|	|	|
V|	22+30	1.7040	0.17	Q	|	|	|
V|	22+35	1.7051	0.17	Q	|	|	|
V|	22+40	1.7063	0.17	Q	|	|	|
V|	22+45	1.7074	0.17	Q	|	|	|
V|	22+50	1.7085	0.17	Q	|	|	|
V|	22+55	1.7097	0.17	Q	|	|	|
V|	23+ 0	1.7108	0.17	Q	|	|	|
V|	23+ 5	1.7120	0.17	Q	|	|	|
V|	23+10	1.7131	0.17	Q	|	|	|
V|	23+15	1.7143	0.17	Q	|	|	|
V|	23+20	1.7154	0.17	Q	|	|	|
V|	23+25	1.7166	0.17	Q	|	|	|
V|	23+30	1.7177	0.17	Q	|	|	|
V|	23+35	1.7188	0.17	Q	|	|	|
V|	23+40	1.7200	0.17	Q	|	|	|
V|	23+45	1.7211	0.17	Q	|	|	|
V|	23+50	1.7223	0.17	Q	|	|	|
V|	23+55	1.7234	0.17	Q	|	|	|
V|	24+ 0	1.7246	0.17	Q	|	|	|
V|	24+ 5	1.7252	0.09	Q	|	|	|
V|	24+10	1.7253	0.01	Q	|	|	|
V|	24+15	1.7253	0.00	Q	|	|	|
V							

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

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Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.037	(0.143)	0.014	0.023
2	0.17	0.07	0.037	(0.142)	0.014	0.023
3	0.25	0.07	0.037	(0.142)	0.014	0.023
4	0.33	0.10	0.056	(0.141)	0.021	0.035
5	0.42	0.10	0.056	(0.140)	0.021	0.035
6	0.50	0.10	0.056	(0.140)	0.021	0.035
7	0.58	0.10	0.056	(0.139)	0.021	0.035
8	0.67	0.10	0.056	(0.139)	0.021	0.035
9	0.75	0.10	0.056	(0.138)	0.021	0.035
10	0.83	0.13	0.074	(0.138)	0.028	0.046
11	0.92	0.13	0.074	(0.137)	0.028	0.046
12	1.00	0.13	0.074	(0.137)	0.028	0.046
13	1.08	0.10	0.056	(0.136)	0.021	0.035
14	1.17	0.10	0.056	(0.136)	0.021	0.035
15	1.25	0.10	0.056	(0.135)	0.021	0.035
16	1.33	0.10	0.056	(0.134)	0.021	0.035
17	1.42	0.10	0.056	(0.134)	0.021	0.035
18	1.50	0.10	0.056	(0.133)	0.021	0.035
19	1.58	0.10	0.056	(0.133)	0.021	0.035
20	1.67	0.10	0.056	(0.132)	0.021	0.035
21	1.75	0.10	0.056	(0.132)	0.021	0.035
22	1.83	0.13	0.074	(0.131)	0.028	0.046
23	1.92	0.13	0.074	(0.131)	0.028	0.046
24	2.00	0.13	0.074	(0.130)	0.028	0.046
25	2.08	0.13	0.074	(0.130)	0.028	0.046
26	2.17	0.13	0.074	(0.129)	0.028	0.046
27	2.25	0.13	0.074	(0.129)	0.028	0.046
28	2.33	0.13	0.074	(0.128)	0.028	0.046
29	2.42	0.13	0.074	(0.128)	0.028	0.046
30	2.50	0.13	0.074	(0.127)	0.028	0.046
31	2.58	0.17	0.093	(0.127)	0.035	0.058
32	2.67	0.17	0.093	(0.126)	0.035	0.058
33	2.75	0.17	0.093	(0.125)	0.035	0.058
34	2.83	0.17	0.093	(0.125)	0.035	0.058
35	2.92	0.17	0.093	(0.124)	0.035	0.058
36	3.00	0.17	0.093	(0.124)	0.035	0.058
37	3.08	0.17	0.093	(0.123)	0.035	0.058
38	3.17	0.17	0.093	(0.123)	0.035	0.058
39	3.25	0.17	0.093	(0.122)	0.035	0.058
40	3.33	0.17	0.093	(0.122)	0.035	0.058
41	3.42	0.17	0.093	(0.121)	0.035	0.058
42	3.50	0.17	0.093	(0.121)	0.035	0.058
43	3.58	0.17	0.093	(0.120)	0.035	0.058
44	3.67	0.17	0.093	(0.120)	0.035	0.058
45	3.75	0.17	0.093	(0.119)	0.035	0.058
46	3.83	0.20	0.111	(0.119)	0.042	0.069
47	3.92	0.20	0.111	(0.118)	0.042	0.069
48	4.00	0.20	0.111	(0.118)	0.042	0.069
49	4.08	0.20	0.111	(0.117)	0.042	0.069
50	4.17	0.20	0.111	(0.117)	0.042	0.069
51	4.25	0.20	0.111	(0.116)	0.042	0.069
52	4.33	0.23	0.130	(0.116)	0.049	0.081
53	4.42	0.23	0.130	(0.115)	0.049	0.081
54	4.50	0.23	0.130	(0.115)	0.049	0.081
55	4.58	0.23	0.130	(0.114)	0.049	0.081
56	4.67	0.23	0.130	(0.114)	0.049	0.081
57	4.75	0.23	0.130	(0.113)	0.049	0.081
58	4.83	0.27	0.148	(0.113)	0.056	0.092

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

59	4.92	0.27	0.148	(0.112)	0.056	0.092
60	5.00	0.27	0.148	(0.112)	0.056	0.092
61	5.08	0.20	0.111	(0.111)	0.042	0.069
62	5.17	0.20	0.111	(0.111)	0.042	0.069
63	5.25	0.20	0.111	(0.110)	0.042	0.069
64	5.33	0.23	0.130	(0.110)	0.049	0.081
65	5.42	0.23	0.130	(0.110)	0.049	0.081
66	5.50	0.23	0.130	(0.109)	0.049	0.081
67	5.58	0.27	0.148	(0.109)	0.056	0.092
68	5.67	0.27	0.148	(0.108)	0.056	0.092
69	5.75	0.27	0.148	(0.108)	0.056	0.092
70	5.83	0.27	0.148	(0.107)	0.056	0.092
71	5.92	0.27	0.148	(0.107)	0.056	0.092
72	6.00	0.27	0.148	(0.106)	0.056	0.092
73	6.08	0.30	0.167	(0.106)	0.063	0.104
74	6.17	0.30	0.167	(0.105)	0.063	0.104
75	6.25	0.30	0.167	(0.105)	0.063	0.104
76	6.33	0.30	0.167	(0.104)	0.063	0.104
77	6.42	0.30	0.167	(0.104)	0.063	0.104
78	6.50	0.30	0.167	(0.103)	0.063	0.104
79	6.58	0.33	0.186	(0.103)	0.071	0.115
80	6.67	0.33	0.186	(0.102)	0.071	0.115
81	6.75	0.33	0.186	(0.102)	0.071	0.115
82	6.83	0.33	0.186	(0.102)	0.071	0.115
83	6.92	0.33	0.186	(0.101)	0.071	0.115
84	7.00	0.33	0.186	(0.101)	0.071	0.115
85	7.08	0.33	0.186	(0.100)	0.071	0.115
86	7.17	0.33	0.186	(0.100)	0.071	0.115
87	7.25	0.33	0.186	(0.099)	0.071	0.115
88	7.33	0.37	0.204	(0.099)	0.078	0.127
89	7.42	0.37	0.204	(0.098)	0.078	0.127
90	7.50	0.37	0.204	(0.098)	0.078	0.127
91	7.58	0.40	0.223	(0.097)	0.085	0.138
92	7.67	0.40	0.223	(0.097)	0.085	0.138
93	7.75	0.40	0.223	(0.097)	0.085	0.138
94	7.83	0.43	0.241	(0.096)	0.092	0.150
95	7.92	0.43	0.241	(0.096)	0.092	0.150
96	8.00	0.43	0.241	(0.095)	0.092	0.150
97	8.08	0.50	0.278	0.095 (0.106)		0.184
98	8.17	0.50	0.278	0.094 (0.106)		0.184
99	8.25	0.50	0.278	0.094 (0.106)		0.185
100	8.33	0.50	0.278	0.093 (0.106)		0.185
101	8.42	0.50	0.278	0.093 (0.106)		0.185
102	8.50	0.50	0.278	0.093 (0.106)		0.186
103	8.58	0.53	0.297	0.092 (0.113)		0.205
104	8.67	0.53	0.297	0.092 (0.113)		0.205
105	8.75	0.53	0.297	0.091 (0.113)		0.206
106	8.83	0.57	0.316	0.091 (0.120)		0.225
107	8.92	0.57	0.316	0.090 (0.120)		0.225
108	9.00	0.57	0.316	0.090 (0.120)		0.226
109	9.08	0.63	0.353	0.090 (0.134)		0.263
110	9.17	0.63	0.353	0.089 (0.134)		0.264
111	9.25	0.63	0.353	0.089 (0.134)		0.264
112	9.33	0.67	0.371	0.088 (0.141)		0.283
113	9.42	0.67	0.371	0.088 (0.141)		0.283
114	9.50	0.67	0.371	0.087 (0.141)		0.284
115	9.58	0.70	0.390	0.087 (0.148)		0.303
116	9.67	0.70	0.390	0.087 (0.148)		0.303
117	9.75	0.70	0.390	0.086 (0.148)		0.304
118	9.83	0.73	0.408	0.086 (0.155)		0.323

119	9.92	0.73	0.408	0.085	(0.155)	0.323
120	10.00	0.73	0.408	0.085	(0.155)	0.323
121	10.08	0.50	0.278	0.085	(0.106)	0.194
122	10.17	0.50	0.278	0.084	(0.106)	0.194
123	10.25	0.50	0.278	0.084	(0.106)	0.195
124	10.33	0.50	0.278	0.083	(0.106)	0.195
125	10.42	0.50	0.278	0.083	(0.106)	0.195
126	10.50	0.50	0.278	0.083	(0.106)	0.196
127	10.58	0.67	0.371	0.082	(0.141)	0.289
128	10.67	0.67	0.371	0.082	(0.141)	0.289
129	10.75	0.67	0.371	0.081	(0.141)	0.290
130	10.83	0.67	0.371	0.081	(0.141)	0.290
131	10.92	0.67	0.371	0.081	(0.141)	0.291
132	11.00	0.67	0.371	0.080	(0.141)	0.291
133	11.08	0.63	0.353	0.080	(0.134)	0.273
134	11.17	0.63	0.353	0.079	(0.134)	0.273
135	11.25	0.63	0.353	0.079	(0.134)	0.274
136	11.33	0.63	0.353	0.079	(0.134)	0.274
137	11.42	0.63	0.353	0.078	(0.134)	0.274
138	11.50	0.63	0.353	0.078	(0.134)	0.275
139	11.58	0.57	0.316	0.077	(0.120)	0.238
140	11.67	0.57	0.316	0.077	(0.120)	0.239
141	11.75	0.57	0.316	0.077	(0.120)	0.239
142	11.83	0.60	0.334	0.076	(0.127)	0.258
143	11.92	0.60	0.334	0.076	(0.127)	0.258
144	12.00	0.60	0.334	0.075	(0.127)	0.259
145	12.08	0.83	0.464	0.075	(0.176)	0.389
146	12.17	0.83	0.464	0.075	(0.176)	0.389
147	12.25	0.83	0.464	0.074	(0.176)	0.390
148	12.33	0.87	0.483	0.074	(0.183)	0.409
149	12.42	0.87	0.483	0.074	(0.183)	0.409
150	12.50	0.87	0.483	0.073	(0.183)	0.409
151	12.58	0.93	0.520	0.073	(0.197)	0.447
152	12.67	0.93	0.520	0.072	(0.197)	0.447
153	12.75	0.93	0.520	0.072	(0.197)	0.448
154	12.83	0.97	0.538	0.072	(0.205)	0.466
155	12.92	0.97	0.538	0.071	(0.205)	0.467
156	13.00	0.97	0.538	0.071	(0.205)	0.467
157	13.08	1.13	0.631	0.071	(0.240)	0.560
158	13.17	1.13	0.631	0.070	(0.240)	0.561
159	13.25	1.13	0.631	0.070	(0.240)	0.561
160	13.33	1.13	0.631	0.070	(0.240)	0.561
161	13.42	1.13	0.631	0.069	(0.240)	0.562
162	13.50	1.13	0.631	0.069	(0.240)	0.562
163	13.58	0.77	0.427	0.069	(0.162)	0.358
164	13.67	0.77	0.427	0.068	(0.162)	0.359
165	13.75	0.77	0.427	0.068	(0.162)	0.359
166	13.83	0.77	0.427	0.068	(0.162)	0.359
167	13.92	0.77	0.427	0.067	(0.162)	0.360
168	14.00	0.77	0.427	0.067	(0.162)	0.360
169	14.08	0.90	0.501	0.066	(0.190)	0.435
170	14.17	0.90	0.501	0.066	(0.190)	0.435
171	14.25	0.90	0.501	0.066	(0.190)	0.435
172	14.33	0.87	0.483	0.065	(0.183)	0.417
173	14.42	0.87	0.483	0.065	(0.183)	0.417
174	14.50	0.87	0.483	0.065	(0.183)	0.418
175	14.58	0.87	0.483	0.064	(0.183)	0.418
176	14.67	0.87	0.483	0.064	(0.183)	0.418
177	14.75	0.87	0.483	0.064	(0.183)	0.419
178	14.83	0.83	0.464	0.063	(0.176)	0.401

179	14.92	0.83	0.464	0.063	(0.176)	0.401
180	15.00	0.83	0.464	0.063	(0.176)	0.401
181	15.08	0.80	0.445	0.063	(0.169)	0.383
182	15.17	0.80	0.445	0.062	(0.169)	0.383
183	15.25	0.80	0.445	0.062	(0.169)	0.384
184	15.33	0.77	0.427	0.062	(0.162)	0.365
185	15.42	0.77	0.427	0.061	(0.162)	0.366
186	15.50	0.77	0.427	0.061	(0.162)	0.366
187	15.58	0.63	0.353	0.061	(0.134)	0.292
188	15.67	0.63	0.353	0.060	(0.134)	0.292
189	15.75	0.63	0.353	0.060	(0.134)	0.293
190	15.83	0.63	0.353	0.060	(0.134)	0.293
191	15.92	0.63	0.353	0.059	(0.134)	0.293
192	16.00	0.63	0.353	0.059	(0.134)	0.294
193	16.08	0.13	0.074	(0.059)	0.028	0.046
194	16.17	0.13	0.074	(0.058)	0.028	0.046
195	16.25	0.13	0.074	(0.058)	0.028	0.046
196	16.33	0.13	0.074	(0.058)	0.028	0.046
197	16.42	0.13	0.074	(0.058)	0.028	0.046
198	16.50	0.13	0.074	(0.057)	0.028	0.046
199	16.58	0.10	0.056	(0.057)	0.021	0.035
200	16.67	0.10	0.056	(0.057)	0.021	0.035
201	16.75	0.10	0.056	(0.056)	0.021	0.035
202	16.83	0.10	0.056	(0.056)	0.021	0.035
203	16.92	0.10	0.056	(0.056)	0.021	0.035
204	17.00	0.10	0.056	(0.056)	0.021	0.035
205	17.08	0.17	0.093	(0.055)	0.035	0.058
206	17.17	0.17	0.093	(0.055)	0.035	0.058
207	17.25	0.17	0.093	(0.055)	0.035	0.058
208	17.33	0.17	0.093	(0.054)	0.035	0.058
209	17.42	0.17	0.093	(0.054)	0.035	0.058
210	17.50	0.17	0.093	(0.054)	0.035	0.058
211	17.58	0.17	0.093	(0.054)	0.035	0.058
212	17.67	0.17	0.093	(0.053)	0.035	0.058
213	17.75	0.17	0.093	(0.053)	0.035	0.058
214	17.83	0.13	0.074	(0.053)	0.028	0.046
215	17.92	0.13	0.074	(0.053)	0.028	0.046
216	18.00	0.13	0.074	(0.052)	0.028	0.046
217	18.08	0.13	0.074	(0.052)	0.028	0.046
218	18.17	0.13	0.074	(0.052)	0.028	0.046
219	18.25	0.13	0.074	(0.052)	0.028	0.046
220	18.33	0.13	0.074	(0.051)	0.028	0.046
221	18.42	0.13	0.074	(0.051)	0.028	0.046
222	18.50	0.13	0.074	(0.051)	0.028	0.046
223	18.58	0.10	0.056	(0.051)	0.021	0.035
224	18.67	0.10	0.056	(0.050)	0.021	0.035
225	18.75	0.10	0.056	(0.050)	0.021	0.035
226	18.83	0.07	0.037	(0.050)	0.014	0.023
227	18.92	0.07	0.037	(0.050)	0.014	0.023
228	19.00	0.07	0.037	(0.049)	0.014	0.023
229	19.08	0.10	0.056	(0.049)	0.021	0.035
230	19.17	0.10	0.056	(0.049)	0.021	0.035
231	19.25	0.10	0.056	(0.049)	0.021	0.035
232	19.33	0.13	0.074	(0.048)	0.028	0.046
233	19.42	0.13	0.074	(0.048)	0.028	0.046
234	19.50	0.13	0.074	(0.048)	0.028	0.046
235	19.58	0.10	0.056	(0.048)	0.021	0.035
236	19.67	0.10	0.056	(0.048)	0.021	0.035
237	19.75	0.10	0.056	(0.047)	0.021	0.035
238	19.83	0.07	0.037	(0.047)	0.014	0.023

239	19.92	0.07	0.037	(0.047)	0.014	0.023
240	20.00	0.07	0.037	(0.047)	0.014	0.023
241	20.08	0.10	0.056	(0.047)	0.021	0.035
242	20.17	0.10	0.056	(0.046)	0.021	0.035
243	20.25	0.10	0.056	(0.046)	0.021	0.035
244	20.33	0.10	0.056	(0.046)	0.021	0.035
245	20.42	0.10	0.056	(0.046)	0.021	0.035
246	20.50	0.10	0.056	(0.046)	0.021	0.035
247	20.58	0.10	0.056	(0.045)	0.021	0.035
248	20.67	0.10	0.056	(0.045)	0.021	0.035
249	20.75	0.10	0.056	(0.045)	0.021	0.035
250	20.83	0.07	0.037	(0.045)	0.014	0.023
251	20.92	0.07	0.037	(0.045)	0.014	0.023
252	21.00	0.07	0.037	(0.044)	0.014	0.023
253	21.08	0.10	0.056	(0.044)	0.021	0.035
254	21.17	0.10	0.056	(0.044)	0.021	0.035
255	21.25	0.10	0.056	(0.044)	0.021	0.035
256	21.33	0.07	0.037	(0.044)	0.014	0.023
257	21.42	0.07	0.037	(0.044)	0.014	0.023
258	21.50	0.07	0.037	(0.043)	0.014	0.023
259	21.58	0.10	0.056	(0.043)	0.021	0.035
260	21.67	0.10	0.056	(0.043)	0.021	0.035
261	21.75	0.10	0.056	(0.043)	0.021	0.035
262	21.83	0.07	0.037	(0.043)	0.014	0.023
263	21.92	0.07	0.037	(0.043)	0.014	0.023
264	22.00	0.07	0.037	(0.042)	0.014	0.023
265	22.08	0.10	0.056	(0.042)	0.021	0.035
266	22.17	0.10	0.056	(0.042)	0.021	0.035
267	22.25	0.10	0.056	(0.042)	0.021	0.035
268	22.33	0.07	0.037	(0.042)	0.014	0.023
269	22.42	0.07	0.037	(0.042)	0.014	0.023
270	22.50	0.07	0.037	(0.042)	0.014	0.023
271	22.58	0.07	0.037	(0.042)	0.014	0.023
272	22.67	0.07	0.037	(0.041)	0.014	0.023
273	22.75	0.07	0.037	(0.041)	0.014	0.023
274	22.83	0.07	0.037	(0.041)	0.014	0.023
275	22.92	0.07	0.037	(0.041)	0.014	0.023
276	23.00	0.07	0.037	(0.041)	0.014	0.023
277	23.08	0.07	0.037	(0.041)	0.014	0.023
278	23.17	0.07	0.037	(0.041)	0.014	0.023
279	23.25	0.07	0.037	(0.041)	0.014	0.023
280	23.33	0.07	0.037	(0.041)	0.014	0.023
281	23.42	0.07	0.037	(0.041)	0.014	0.023
282	23.50	0.07	0.037	(0.041)	0.014	0.023
283	23.58	0.07	0.037	(0.040)	0.014	0.023
284	23.67	0.07	0.037	(0.040)	0.014	0.023
285	23.75	0.07	0.037	(0.040)	0.014	0.023
286	23.83	0.07	0.037	(0.040)	0.014	0.023
287	23.92	0.07	0.037	(0.040)	0.014	0.023
288	24.00	0.07	0.037	(0.040)	0.014	0.023

(Loss Rate Not Used)

Sum =	100.0		Sum =	42.0
Flood volume =	Effective rainfall	3.50(In)		
times area	10.9(Ac.)/[((In)/(Ft.))] =		3.2(Ac.Ft)	
Total soil loss =	1.14(In)			
Total soil loss =	1.033(Ac.Ft)			
Total rainfall =	4.64(In)			
Flood volume =	138583.4 Cubic Feet			
Total soil loss =	45003.6 Cubic Feet			

-- Peak flow rate of this hydrograph = 6.176(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

-- Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0008	0.11	Q			
0+10	0.0024	0.24	Q			
0+15	0.0041	0.25	VQ			
0+20	0.0063	0.31	VQ			
0+25	0.0088	0.37	VQ			
0+30	0.0114	0.38	VQ			
0+35	0.0140	0.38	VQ			
0+40	0.0167	0.38	VQ			
0+45	0.0193	0.38	VQ			
0+50	0.0223	0.44	VQ			
0+55	0.0257	0.50	VQ			
1+ 0	0.0292	0.50	V Q			
1+ 5	0.0323	0.45	VQ			
1+10	0.0349	0.39	VQ			
1+15	0.0376	0.38	VQ			
1+20	0.0402	0.38	VQ			
1+25	0.0428	0.38	VQ			
1+30	0.0454	0.38	VQ			
1+35	0.0480	0.38	VQ			
1+40	0.0506	0.38	VQ			
1+45	0.0532	0.38	VQ			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+50	0.0562	0.44	VQ	|	|	|
1+55	0.0597	0.50	VQ	|	|	|
2+ 0	0.0631	0.50	V Q	|	|	|
2+ 5	0.0666	0.51	V Q	|	|	|
2+10	0.0701	0.51	V Q	|	|	|
2+15	0.0736	0.51	V Q	|	|	|
2+20	0.0771	0.51	V Q	|	|	|
2+25	0.0806	0.51	|VQ	|	|	|
2+30	0.0841	0.51	|VQ	|	|	|
2+35	0.0879	0.56	|VQ	|	|	|
2+40	0.0922	0.62	|VQ	|	|	|
2+45	0.0966	0.63	|VQ	|	|	|
2+50	0.1009	0.63	|VQ	|	|	|
2+55	0.1053	0.63	|VQ	|	|	|
3+ 0	0.1096	0.63	|VQ	|	|	|
3+ 5	0.1140	0.63	|VQ	|	|	|
3+10	0.1183	0.63	|VQ	|	|	|
3+15	0.1227	0.63	|VQ	|	|	|
3+20	0.1271	0.63	|VQ	|	|	|
3+25	0.1314	0.63	|VQ	|	|	|
3+30	0.1358	0.63	|VQ	|	|	|
3+35	0.1401	0.63	|VQ	|	|	|
3+40	0.1445	0.63	|VQ	|	|	|
3+45	0.1488	0.63	|VQ	|	|	|
3+50	0.1536	0.69	|VQ	|	|	|
3+55	0.1587	0.75	|V Q	|	|	|
4+ 0	0.1640	0.76	| VQ	|	|	|
4+ 5	0.1692	0.76	| VQ	|	|	|
4+10	0.1744	0.76	| VQ	|	|	|
4+15	0.1796	0.76	| VQ	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+20	0.1853	0.82	VQ			
4+25	0.1913	0.88	VQ			
4+30	0.1974	0.88	VQ			
4+35	0.2035	0.89	VQ			
4+40	0.2096	0.89	VQ			
4+45	0.2157	0.89	VQ			
4+50	0.2222	0.94	VQ			
4+55	0.2291	1.00	V Q			
5+ 0	0.2360	1.01	V Q			
5+ 5	0.2422	0.90	Q			
5+10	0.2476	0.78	Q			
5+15	0.2528	0.76	Q			
5+20	0.2584	0.82	Q			
5+25	0.2645	0.88	Q			
5+30	0.2706	0.88	Q			
5+35	0.2770	0.94	Q			
5+40	0.2840	1.00	VQ			
5+45	0.2909	1.01	VQ			
5+50	0.2979	1.01	VQ			
5+55	0.3049	1.01	VQ			
6+ 0	0.3118	1.01	VQ			
6+ 5	0.3192	1.07	Q			
6+10	0.3270	1.13	Q			
6+15	0.3348	1.14	Q			
6+20	0.3426	1.14	Q			
6+25	0.3505	1.14	Q			
6+30	0.3583	1.14	Q			
6+35	0.3665	1.19	Q			
6+40	0.3752	1.26	VQ			
6+45	0.3839	1.26	VQ			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+50	0.3926	1.26	VQ			
6+55	0.4013	1.26	Q			
7+ 0	0.4100	1.26	Q			
7+ 5	0.4187	1.26	Q			
7+10	0.4274	1.26	Q			
7+15	0.4362	1.26	Q			
7+20	0.4453	1.32	Q			
7+25	0.4548	1.38	Q			
7+30	0.4644	1.39	Q			
7+35	0.4743	1.45	Q			
7+40	0.4847	1.51	Q			
7+45	0.4952	1.52	Q			
7+50	0.5060	1.57	Q			
7+55	0.5173	1.64	Q			
8+ 0	0.5286	1.64	Q			
8+ 5	0.5411	1.81	VQ			
8+10	0.5548	2.00	VQ			
8+15	0.5687	2.02	VQ			
8+20	0.5827	2.03	VQ			
8+25	0.5967	2.03	VQ			
8+30	0.6108	2.04	VQ			
8+35	0.6255	2.14	VQ			
8+40	0.6409	2.24	Q			
8+45	0.6565	2.26	VQ			
8+50	0.6727	2.35	VQ			
8+55	0.6896	2.46	VQ			
9+ 0	0.7066	2.47	VQ			
9+ 5	0.7250	2.66	VQ			
9+10	0.7447	2.87	V|Q			
9+15	0.7647	2.89	V|Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

9+20	0.7853	2.99	|	V|Q	|	|
9+25	0.8066	3.10	|	V Q	|	|
9+30	0.8281	3.11	|	V Q	|	|
9+35	0.8502	3.21	|	V Q	|	|
9+40	0.8730	3.32	|	V Q	|	|
9+45	0.8960	3.33	|	|V Q	|	|
9+50	0.9196	3.43	|	|V Q	|	|
9+55	0.9439	3.53	|	|V Q	|	|
10+ 0	0.9684	3.55	|	| V Q	|	|
10+ 5	0.9884	2.92	|	|QV	|	|
10+10	1.0038	2.22	|	Q | V	|	|
10+15	1.0186	2.15	|	Q | V	|	|
10+20	1.0333	2.14	|	Q | V	|	|
10+25	1.0481	2.15	|	Q | V	|	|
10+30	1.0629	2.15	|	Q | V	|	|
10+35	1.0809	2.61	|	Q V	|	|
10+40	1.1023	3.11	|	| QV	|	|
10+45	1.1242	3.17	|	| Q V	|	|
10+50	1.1461	3.19	|	| Q V	|	|
10+55	1.1681	3.19	|	| Q V	|	|
11+ 0	1.1901	3.20	|	| Q V	|	|
11+ 5	1.2116	3.11	|	| Q V	|	|
11+10	1.2323	3.01	|	| Q V	|	|
11+15	1.2530	3.01	|	| Q V	|	|
11+20	1.2738	3.01	|	| Q V	|	|
11+25	1.2945	3.01	|	| Q V	|	|
11+30	1.3153	3.02	|	| Q V	|	|
11+35	1.3349	2.84	|	|Q V	|	|
11+40	1.3531	2.65	|	Q V	|	|
11+45	1.3712	2.63	|	Q V	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

11+50	1.3899	2.72	|	Q	V	|	|
11+55	1.4093	2.82	|	|Q	V	|	|
12+ 0	1.4289	2.84	|	|Q	V	|	|
12+ 5	1.4529	3.48	|	|	Q	V	|
12+10	1.4817	4.18	|	|	Q	V	|
12+15	1.5111	4.27	|	|	QV	|	|
12+20	1.5412	4.38	|	|	Q	V	|
12+25	1.5721	4.48	|	|	Q	V	|
12+30	1.6030	4.49	|	|	Q	V	|
12+35	1.6353	4.68	|	|	Q	V	|
12+40	1.6689	4.89	|	|	QV	|	|
12+45	1.7027	4.91	|	|	Q	V	|
12+50	1.7373	5.01	|	|	QV	|	|
12+55	1.7725	5.12	|	|	Q	V	|
13+ 0	1.8078	5.13	|	|	Q	V	|
13+ 5	1.8463	5.59	|	|	|	QV	|
13+10	1.8883	6.09	|	|	|	VQ	|
13+15	1.9307	6.16	|	|	|	Q	|
13+20	1.9732	6.17	|	|	|	Q	|
13+25	2.0157	6.17	|	|	|	QV	|
13+30	2.0582	6.18	|	|	|	QV	|
13+35	2.0939	5.17	|	|	Q	V	|
13+40	2.1220	4.08	|	|	Q	V	|
13+45	2.1493	3.96	|	|	Q	V	|
13+50	2.1765	3.95	|	|	Q	V	|
13+55	2.2037	3.95	|	|	Q	V	|
14+ 0	2.2309	3.95	|	|	Q	V	|
14+ 5	2.2607	4.32	|	|	Q	V	|
14+10	2.2932	4.73	|	|	Q	V	|
14+15	2.3261	4.78	|	|	Q	V	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

14+20	2.3585	4.69	|	|	Q	|	V	|
14+25	2.3901	4.60	|	|	Q	|	V	
14+30	2.4218	4.59	|	|	Q	|	V	
14+35	2.4534	4.59	|	|	Q	|	V	
14+40	2.4850	4.60	|	|	Q	|	|V	
14+45	2.5167	4.60	|	|	Q	|	|V	
14+50	2.5478	4.51	|	|	Q	|	|V	
14+55	2.5782	4.42	|	|	Q	|	|V	
15+ 0	2.6086	4.41	|	|	Q	|	|V	
15+ 5	2.6383	4.32	|	|	Q	|	|V	
15+10	2.6674	4.22	|	|	Q	|	|V	
15+15	2.6964	4.22	|	|	Q	|	|V	
15+20	2.7248	4.13	|	|	Q	|	|V	
15+25	2.7526	4.03	|	|	Q	|	|V	
15+30	2.7803	4.02	|	|	Q	|	|V	
15+35	2.8055	3.66	|	|	Q	|	|V	
15+40	2.8280	3.26	|	|	Q	|	|V	
15+45	2.8502	3.22	|	|	Q	|	|V	
15+50	2.8723	3.22	|	|	Q	|	|V	
15+55	2.8945	3.22	|	|	Q	|	|V	
16+ 0	2.9167	3.22	|	|	Q	|	|V	
16+ 5	2.9305	2.01	|	Q	|	|	|V	
16+10	2.9352	0.68	|	Q	|	|	|V	
16+15	2.9389	0.53	|	Q	|	|	|V	
16+20	2.9423	0.51	|	Q	|	|	|V	
16+25	2.9458	0.51	|	Q	|	|	|V	
16+30	2.9493	0.51	|	Q	|	|	|V	
16+35	2.9524	0.45	|	Q	|	|	|V	
16+40	2.9551	0.39	|	Q	|	|	|V	
16+45	2.9577	0.38	|	Q	|	|	|V	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

16+50	2.9603	0.38	|Q	|	|	|	V
16+55	2.9629	0.38	|Q	|	|	|	V
17+ 0	2.9655	0.38	|Q	|	|	|	V
17+ 5	2.9689	0.49	|Q	|	|	|	V
17+10	2.9732	0.62	| Q	|	|	|	V
17+15	2.9775	0.63	| Q	|	|	|	V
17+20	2.9819	0.63	| Q	|	|	|	V
17+25	2.9862	0.63	| Q	|	|	|	V
17+30	2.9906	0.63	| Q	|	|	|	V
17+35	2.9949	0.63	| Q	|	|	|	V
17+40	2.9993	0.63	| Q	|	|	|	V
17+45	3.0036	0.63	| Q	|	|	|	V
17+50	3.0076	0.58	| Q	|	|	|	V
17+55	3.0111	0.51	| Q	|	|	|	V
18+ 0	3.0146	0.51	| Q	|	|	|	V
18+ 5	3.0181	0.51	| Q	|	|	|	V
18+10	3.0216	0.51	| Q	|	|	|	V
18+15	3.0251	0.51	| Q	|	|	|	V
18+20	3.0286	0.51	| Q	|	|	|	V
18+25	3.0321	0.51	| Q	|	|	|	V
18+30	3.0355	0.51	| Q	|	|	|	V
18+35	3.0386	0.45	|Q	|	|	|	V
18+40	3.0413	0.39	|Q	|	|	|	V
18+45	3.0439	0.38	|Q	|	|	|	V
18+50	3.0461	0.32	|Q	|	|	|	V
18+55	3.0479	0.26	|Q	|	|	|	V
19+ 0	3.0497	0.25	|Q	|	|	|	V
19+ 5	3.0518	0.31	|Q	|	|	|	V
19+10	3.0544	0.37	|Q	|	|	|	V
19+15	3.0570	0.38	|Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

19+20	3.0600	0.44	|Q	|	|	|	V
19+25	3.0634	0.50	|Q	|	|	|	V
19+30	3.0669	0.50	| Q	|	|	|	V
19+35	3.0700	0.45	|Q	|	|	|	V
19+40	3.0727	0.39	|Q	|	|	|	V
19+45	3.0753	0.38	|Q	|	|	|	V
19+50	3.0775	0.32	|Q	|	|	|	V
19+55	3.0793	0.26	|Q	|	|	|	V
20+ 0	3.0811	0.25	|Q	|	|	|	V
20+ 5	3.0832	0.31	|Q	|	|	|	V
20+10	3.0857	0.37	|Q	|	|	|	V
20+15	3.0883	0.38	|Q	|	|	|	V
20+20	3.0910	0.38	|Q	|	|	|	V
20+25	3.0936	0.38	|Q	|	|	|	V
20+30	3.0962	0.38	|Q	|	|	|	V
20+35	3.0988	0.38	|Q	|	|	|	V
20+40	3.1014	0.38	|Q	|	|	|	V
V| 20+45	3.1040	0.38	|Q	|	|	|	
V| 20+50	3.1062	0.32	|Q	|	|	|	
V| 20+55	3.1080	0.26	|Q	|	|	|	
V| 21+ 0	3.1098	0.25	|Q	|	|	|	
V| 21+ 5	3.1119	0.31	|Q	|	|	|	
V| 21+10	3.1145	0.37	|Q	|	|	|	
V| 21+15	3.1171	0.38	|Q	|	|	|	
V| 21+20	3.1193	0.32	|Q	|	|	|	
V| 21+25	3.1211	0.26	|Q	|	|	|	
V| 21+30	3.1229	0.25	|Q	|	|	|	
V| 21+35	3.1250	0.31	|Q	|	|	|	
V| 21+40	3.1276	0.37	|Q	|	|	|	
V| 21+45	3.1302	0.38	|Q	|	|	|	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	3.1324	0.32	|Q	|	|	|
V|	21+55	3.1342	0.26	|Q	|	|	|
V|	22+ 0	3.1359	0.25	|Q	|	|	|
V|	22+ 5	3.1381	0.31	|Q	|	|	|
V|	22+10	3.1406	0.37	|Q	|	|	|
V|	22+15	3.1432	0.38	|Q	|	|	|
V|	22+20	3.1454	0.32	|Q	|	|	|
V|	22+25	3.1472	0.26	|Q	|	|	|
V|	22+30	3.1490	0.25	|Q	|	|	|
V|	22+35	3.1507	0.25	|Q	|	|	|
V|	22+40	3.1525	0.25	|Q	|	|	|
V|	22+45	3.1542	0.25	|Q	|	|	|
V|	22+50	3.1560	0.25	|Q	|	|	|
V|	22+55	3.1577	0.25	|Q	|	|	|
V|	23+ 0	3.1594	0.25	|Q	|	|	|
V|	23+ 5	3.1612	0.25	|Q	|	|	|
V|	23+10	3.1629	0.25	|Q	|	|	|
V|	23+15	3.1647	0.25	|Q	|	|	|
V|	23+20	3.1664	0.25	|Q	|	|	|
V|	23+25	3.1682	0.25	|Q	|	|	|
V|	23+30	3.1699	0.25	|Q	|	|	|
V|	23+35	3.1716	0.25	|Q	|	|	|
V|	23+40	3.1734	0.25	|Q	|	|	|
V|	23+45	3.1751	0.25	|Q	|	|	|
V|	23+50	3.1769	0.25	|Q	|	|	|
V|	23+55	3.1786	0.25	|Q	|	|	|
V|	24+ 0	3.1803	0.25	|Q	|	|	|
V|	24+ 5	3.1813	0.14	Q	|	|	|
V|	24+10	3.1814	0.02	Q	|	|	|
V|	24+15	3.1814	0.00	Q	|	|	|
V							

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Proposed Condition Basin Routing

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/11/21

Gateway Height
Basin Routing
Area A
2yr 24hr

--
Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION

From study/file name: moval33post242.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 290
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 0.656 (CFS)
Total volume = 0.399 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
Process from Point/Station 202.000 to Point/Station
203.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

--
Total number of inflow hydrograph intervals = 290
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

--

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.016	0.500	0.014	0.018
2.000	0.032	0.500	0.030	0.034
3.000	0.097	0.500	0.095	0.099
4.000	0.182	0.500	0.180	0.184
5.000	0.292	0.500	0.290	0.294
6.000	0.402	0.500	0.400	0.404

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)					
			.0	0.2	0.33	0.49	0.66	
0.083	0.02	0.00	0.000	OI	|	|	|	|
0.167	0.04	0.01	0.000	OI	|	|	|	|
0.250	0.04	0.01	0.000	OI	|	|	|	|
0.333	0.05	0.02	0.001	O I	|	|	|	|
0.417	0.06	0.03	0.001	|OI	|	|	|	|
0.500	0.06	0.03	0.001	|OI	|	|	|	|
0.583	0.06	0.04	0.001	|OI	|	|	|	|
0.667	0.06	0.04	0.001	| O	|	|	|	|
0.750	0.06	0.04	0.001	| O	|	|	|	|
0.833	0.07	0.05	0.002	| OI	|	|	|	|
0.917	0.08	0.05	0.002	| OI	|	|	|	|
1.000	0.08	0.06	0.002	| OI	|	|	|	|
1.083	0.07	0.06	0.002	| OI	|	|	|	|
1.167	0.06	0.06	0.002	| O	|	|	|	|

0.12									
1.250	0.06	0.06	0.002	O					
0.12									
1.333	0.06	0.06	0.002	O					
0.12									
1.417	0.06	0.06	0.002	O					
0.12									
1.500	0.06	0.06	0.002	O					
0.12									
1.583	0.06	0.06	0.002	O					
0.12									
1.667	0.06	0.06	0.002	O					
0.12									
1.750	0.06	0.06	0.002	O					
0.12									
1.833	0.07	0.06	0.002	OI					
0.12									
1.917	0.08	0.06	0.002	O					
0.12									
2.000	0.08	0.06	0.002	O					
0.13									
2.083	0.08	0.07	0.002	O					
0.13									
2.167	0.08	0.07	0.002	O					
0.14									
2.250	0.08	0.07	0.002	O					
0.14									
2.333	0.08	0.07	0.002	O					
0.14									
2.417	0.08	0.07	0.002	O					
0.15									
2.500	0.08	0.07	0.002	O					
0.15									
2.583	0.09	0.08	0.002	OI					
0.15									
2.667	0.10	0.08	0.003	OI					
0.16									
2.750	0.10	0.08	0.003	O					
0.16									
2.833	0.10	0.08	0.003	O					
0.17									
2.917	0.10	0.09	0.003	O					
0.17									
3.000	0.10	0.09	0.003	O					
0.18									
3.083	0.10	0.09	0.003	O					
0.18									
3.167	0.10	0.09	0.003	O					
0.18									
3.250	0.10	0.09	0.003	O					
0.19									
3.333	0.10	0.09	0.003	O					
0.19									
3.417	0.10	0.09	0.003	O					
0.19									
3.500	0.10	0.09	0.003	O					
0.19									
3.583	0.10	0.09	0.003	O					
0.19									
3.667	0.10	0.10	0.003	O					

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.19									
3.750	0.10	0.10	0.003	O					
0.19									
3.833	0.11	0.10	0.003	OI					
0.19									
3.917	0.12	0.10	0.003	OI					
0.20									
4.000	0.12	0.10	0.003	O					
0.21									
4.083	0.12	0.11	0.003	O					
0.21									
4.167	0.12	0.11	0.003	O					
0.21									
4.250	0.12	0.11	0.003	O					
0.22									
4.333	0.13	0.11	0.004	OI					
0.22									
4.417	0.13	0.12	0.004	OI					
0.23									
4.500	0.14	0.12	0.004	OI					
0.24									
4.583	0.14	0.12	0.004	OI					
0.24									
4.667	0.14	0.12	0.004	O					
0.25									
4.750	0.14	0.13	0.004	O					
0.25									
4.833	0.15	0.13	0.004	OI					
0.26									
4.917	0.15	0.13	0.004	OI					
0.27									
5.000	0.15	0.14	0.004	OI					
0.27									
5.083	0.13	0.14	0.004	O					
0.28									
5.167	0.12	0.14	0.004	IO					
0.27									
5.250	0.12	0.13	0.004	IO					
0.26									
5.333	0.13	0.13	0.004	O					
0.26									
5.417	0.13	0.13	0.004	O					
0.26									
5.500	0.14	0.13	0.004	O					
0.26									
5.583	0.15	0.13	0.004	OI					
0.27									
5.667	0.15	0.14	0.004	OI					
0.27									
5.750	0.15	0.14	0.004	OI					
0.28									
5.833	0.15	0.14	0.005	OI					
0.29									
5.917	0.15	0.14	0.005	O					
0.29									
6.000	0.15	0.15	0.005	O					
0.29									
6.083	0.16	0.15	0.005	OI					
0.30									
6.167	0.17	0.15	0.005	OI					

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.31								
6.250	0.17	0.16	0.005	|	OI	|	|	|
0.31								
6.333	0.17	0.16	0.005	|	OI	|	|	|
0.32								
6.417	0.17	0.16	0.005	|	OI	|	|	|
0.33								
6.500	0.17	0.17	0.005	|	O	|	|	|
0.33								
6.583	0.18	0.17	0.005	|	O	|	|	|
0.34								
6.667	0.19	0.17	0.005	|	OI	|	|	|
0.34								
6.750	0.19	0.18	0.006	|	OI	|	|	|
0.35								
6.833	0.19	0.18	0.006	|	OI	|	|	|
0.36								
6.917	0.19	0.18	0.006	|	OI	|	|	|
0.36								
7.000	0.19	0.18	0.006	|	OI	|	|	|
0.37								
7.083	0.19	0.19	0.006	|	|O	|	|	|
0.37								
7.167	0.19	0.19	0.006	|	|O	|	|	|
0.37								
7.250	0.19	0.19	0.006	|	|O	|	|	|
0.38								
7.333	0.20	0.19	0.006	|	|O	|	|	|
0.38								
7.417	0.21	0.19	0.006	|	|OI	|	|	|
0.39								
7.500	0.21	0.20	0.006	|	|OI	|	|	|
0.39								
7.583	0.22	0.20	0.006	|	|OI	|	|	|
0.40								
7.667	0.23	0.21	0.007	|	|OI	|	|	|
0.41								
7.750	0.23	0.21	0.007	|	|OI	|	|	|
0.42								
7.833	0.24	0.22	0.007	|	|OI	|	|	|
0.43								
7.917	0.25	0.22	0.007	|	|OI	|	|	|
0.44								
8.000	0.25	0.23	0.007	|	|OI	|	|	|
0.46								
8.083	0.27	0.23	0.007	|	|OI	|	|	|
0.47								
8.167	0.29	0.24	0.008	|	|OI	|	|	|
0.49								
8.250	0.29	0.25	0.008	|	|OI	|	|	|
0.50								
8.333	0.29	0.26	0.008	|	|OI	|	|	|
0.52								
8.417	0.29	0.27	0.008	|	|OI	|	|	|
0.53								
8.500	0.29	0.27	0.009	|	|OI	|	|	|
0.54								
8.583	0.30	0.27	0.009	|	|OI	|	|	|
0.55								
8.667	0.31	0.28	0.009	|	|OI	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.74									
11.250	0.37	0.37	0.012	|	|	|	O	|	|
0.74									
11.333	0.37	0.37	0.012	|	|	|	O	|	|
0.73									
11.417	0.37	0.37	0.012	|	|	|	O	|	|
0.73									
11.500	0.37	0.37	0.012	|	|	|	O	|	|
0.73									
11.583	0.35	0.37	0.012	|	|	|	IO	|	|
0.73									
11.667	0.33	0.36	0.012	|	|	|	IO	|	|
0.72									
11.750	0.33	0.35	0.011	|	|	|	IO	|	|
0.71									
11.833	0.34	0.35	0.011	|	|	|	IO	|	|
0.70									
11.917	0.35	0.35	0.011	|	|	|	O	|	|
0.70									
12.000	0.35	0.35	0.011	|	|	|	O	|	|
0.70									
12.083	0.42	0.36	0.011	|	|	|	O I	|	|
0.71									
12.167	0.48	0.37	0.012	|	|	|	O I	|	|
0.75									
12.250	0.48	0.39	0.013	|	|	|	O I	|	|
0.79									
12.333	0.49	0.41	0.013	|	|	|	O I	|	|
0.83									
12.417	0.50	0.43	0.014	|	|	|	O I	|	|
0.86									
12.500	0.50	0.44	0.014	|	|	|	O I	|	|
0.89									
12.583	0.52	0.46	0.015	|	|	|	O I	|	|
0.91									
12.667	0.54	0.47	0.015	|	|	|	O I	|	|
0.94									
12.750	0.54	0.48	0.016	|	|	|	O I	|	|
0.97									
12.833	0.55	0.50	0.016	|	|	|	O I	|	|
0.99									
12.917	0.56	0.50	0.016	|	|	|	O I	|	|
1.02									
13.000	0.56	0.50	0.017	|	|	|	O I	|	|
1.04									
13.083	0.61	0.50	0.017	|	|	|	O I	|	|
1.08									
13.167	0.65	0.50	0.018	|	|	|	O I	|	|
1.14									
13.250	0.66	0.50	0.019	|	|	|	O I	|	|
1.20									
13.333	0.66	0.50	0.020	|	|	|	O I	|	|
1.27									
13.417	0.66	0.50	0.021	|	|	|	O I	|	|
1.34									
13.500	0.66	0.50	0.022	|	|	|	O I	|	|
1.41									
13.583	0.54	0.50	0.023	|	|	|	O I	|	|
1.45									
13.667	0.45	0.50	0.023	|	|	|	I O	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1.45									
13.750	0.44	0.50	0.023	|	|	|	I	O	|
1.42									
13.833	0.44	0.50	0.022	|	|	|	I	O	|
1.40									
13.917	0.44	0.50	0.022	|	|	|	I	O	|
1.38									
14.000	0.44	0.50	0.022	|	|	|	I	O	|
1.35									
14.083	0.49	0.50	0.021	|	|	|		IO	|
1.34									
14.167	0.52	0.50	0.021	|	|	|		OI	|
1.34									
14.250	0.52	0.50	0.022	|	|	|		OI	|
1.35									
14.333	0.51	0.50	0.022	|	|	|		O	|
1.35									
14.417	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.500	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.583	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.667	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.750	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.833	0.49	0.50	0.022	|	|	|		IO	|
1.36									
14.917	0.48	0.50	0.022	|	|	|		IO	|
1.35									
15.000	0.48	0.50	0.022	|	|	|		IO	|
1.34									
15.083	0.47	0.50	0.021	|	|	|		IO	|
1.34									
15.167	0.46	0.50	0.021	|	|	|		I O	|
1.32									
15.250	0.46	0.50	0.021	|	|	|		I O	|
1.31									
15.333	0.45	0.50	0.021	|	|	|		I O	|
1.29									
15.417	0.44	0.50	0.020	|	|	|		I O	|
1.27									
15.500	0.44	0.50	0.020	|	|	|		I O	|
1.24									
15.583	0.40	0.50	0.019	|	|	|	I	O	|
1.21									
15.667	0.37	0.50	0.019	|	|	|	I	O	|
1.16									
15.750	0.37	0.50	0.018	|	|	|	I	O	|
1.10									
15.833	0.37	0.50	0.017	|	|	|	I	O	|
1.04									
15.917	0.37	0.49	0.016	|	|	|	I	O	|
0.99									
16.000	0.37	0.47	0.015	|	|	|	I	O	|
0.94									
16.083	0.21	0.43	0.014	|	|	I		O	|
0.87									
16.167	0.09	0.38	0.012	|	I	|		O	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.76									
16.250	0.08	0.32	0.010	I		O			
0.64									
16.333	0.08	0.27	0.009	I		O			
0.55									
16.417	0.08	0.24	0.008	I		O			
0.47									
16.500	0.08	0.20	0.007	I		O			
0.41									
16.583	0.07	0.18	0.006	I		O			
0.36									
16.667	0.06	0.16	0.005	I		O			
0.31									
16.750	0.06	0.14	0.004	I		O			
0.27									
16.833	0.06	0.12	0.004	I		O			
0.24									
16.917	0.06	0.11	0.003	I		O			
0.22									
17.000	0.06	0.10	0.003	I		O			
0.20									
17.083	0.08	0.09	0.003	IO					
0.19									
17.167	0.10	0.09	0.003			O			
0.18									
17.250	0.10	0.09	0.003			O			
0.19									
17.333	0.10	0.09	0.003			O			
0.19									
17.417	0.10	0.09	0.003			O			
0.19									
17.500	0.10	0.09	0.003			O			
0.19									
17.583	0.10	0.09	0.003			O			
0.19									
17.667	0.10	0.10	0.003			O			
0.19									
17.750	0.10	0.10	0.003			O			
0.19									
17.833	0.09	0.09	0.003			O			
0.19									
17.917	0.08	0.09	0.003	IO					
0.18									
18.000	0.08	0.09	0.003	IO					
0.18									
18.083	0.08	0.09	0.003	IO					
0.17									
18.167	0.08	0.09	0.003	IO					
0.17									
18.250	0.08	0.08	0.003	IO					
0.17									
18.333	0.08	0.08	0.003	IO					
0.16									
18.417	0.08	0.08	0.003			O			
0.16									
18.500	0.08	0.08	0.003			O			
0.16									
18.583	0.07	0.08	0.003			O			
0.16									
18.667	0.06	0.08	0.002	IO					

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.15									
18.750	0.06	0.07	0.002	| IO	|	|	|	|	|
0.14									
18.833	0.05	0.07	0.002	| IO	|	|	|	|	|
0.14									
18.917	0.04	0.06	0.002	| I O	|	|	|	|	|
0.13									
19.000	0.04	0.06	0.002	| IO	|	|	|	|	|
0.12									
19.083	0.05	0.06	0.002	| O	|	|	|	|	|
0.11									
19.167	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
19.250	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
19.333	0.07	0.06	0.002	| OI	|	|	|	|	|
0.11									
19.417	0.08	0.06	0.002	| OI	|	|	|	|	|
0.12									
19.500	0.08	0.06	0.002	| O	|	|	|	|	|
0.13									
19.583	0.07	0.07	0.002	| O	|	|	|	|	|
0.13									
19.667	0.06	0.06	0.002	| IO	|	|	|	|	|
0.13									
19.750	0.06	0.06	0.002	| IO	|	|	|	|	|
0.13									
19.833	0.05	0.06	0.002	| O	|	|	|	|	|
0.12									
19.917	0.04	0.06	0.002	| IO	|	|	|	|	|
0.12									
20.000	0.04	0.05	0.002	| IO	|	|	|	|	|
0.11									
20.083	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
20.167	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
20.250	0.06	0.05	0.002	| O	|	|	|	|	|
0.11									
20.333	0.06	0.05	0.002	| O	|	|	|	|	|
0.11									
20.417	0.06	0.05	0.002	| O	|	|	|	|	|
0.11									
20.500	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
20.583	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
20.667	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
20.750	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
20.833	0.05	0.06	0.002	| O	|	|	|	|	|
0.11									
20.917	0.04	0.05	0.002	| IO	|	|	|	|	|
0.11									
21.000	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
21.083	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
21.167	0.06	0.05	0.002	| O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.10									
21.250	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
21.333	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
21.417	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
21.500	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
21.583	0.05	0.05	0.002	| O	|	|	|	|	|
0.09									
21.667	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
21.750	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
21.833	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
21.917	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
22.000	0.04	0.05	0.002	| IO	|	|	|	|	|
0.09									
22.083	0.05	0.05	0.001	| O	|	|	|	|	|
0.09									
22.167	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
22.250	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
22.333	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
22.417	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
22.500	0.04	0.05	0.002	| IO	|	|	|	|	|
0.09									
22.583	0.04	0.05	0.001	| IO	|	|	|	|	|
0.09									
22.667	0.04	0.04	0.001	| IO	|	|	|	|	|
0.09									
22.750	0.04	0.04	0.001	| IO	|	|	|	|	|
0.09									
22.833	0.04	0.04	0.001	| IO	|	|	|	|	|
0.08									
22.917	0.04	0.04	0.001	| IO	|	|	|	|	|
0.08									
23.000	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.083	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.167	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.250	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.333	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.417	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.500	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.583	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.667	0.04	0.04	0.001	| O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.08									
23.750	0.04	0.04	0.001	|O	|	|	|	|	|
0.08									
23.833	0.04	0.04	0.001	|O	|	|	|	|	|
0.08									
23.917	0.04	0.04	0.001	|O	|	|	|	|	|
0.08									
24.000	0.04	0.04	0.001	|O	|	|	|	|	|
0.08									
24.083	0.02	0.04	0.001	IO	|	|	|	|	|
0.07									
24.167	0.00	0.03	0.001	IO	|	|	|	|	|
0.06									
24.250	0.00	0.03	0.001	IO	|	|	|	|	|
0.05									
24.333	0.00	0.02	0.001	O	|	|	|	|	|
0.04									
24.417	0.00	0.02	0.001	O	|	|	|	|	|
0.03									
24.500	0.00	0.01	0.000	O	|	|	|	|	|
0.03									
24.583	0.00	0.01	0.000	O	|	|	|	|	|
0.02									
24.667	0.00	0.01	0.000	O	|	|	|	|	|
0.02									
24.750	0.00	0.01	0.000	O	|	|	|	|	|
0.01									
24.833	0.00	0.01	0.000	O	|	|	|	|	|
0.01									
24.917	0.00	0.00	0.000	O	|	|	|	|	|
0.01									
25.000	0.00	0.00	0.000	O	|	|	|	|	|
0.01									
25.083	0.00	0.00	0.000	O	|	|	|	|	|
0.01									
25.167	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
25.250	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
25.333	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
25.417	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
25.500	0.00	0.00	0.000	O	|	|	|	|	|
0.00									

*****HYDROGRAPH
DATA*****
Number of intervals = 306
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 0.500 (CFS)
Total volume = 0.399 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/11/21

Gateway Height
Basin Routing
Area A
100yr 1hr

--
Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION

From study/file name: moval33post1100.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 14
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 13.098 (CFS)
Total volume = 0.370 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
Process from Point/Station 202.000 to Point/Station
203.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

--
Total number of inflow hydrograph intervals = 14
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

--

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

```

--
Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)
-----

```

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--
Depth vs. Storage and Depth vs. Discharge data:
Basin Depth   Storage   Outflow   (S-O*dt/2)   (S+O*dt/2)
  (Ft.)       (Ac.Ft)   (CFS)     (Ac.Ft)     (Ac.Ft)
-----
0.000         0.000     0.000     0.000       0.000
1.000         0.016     0.500     0.014       0.018
2.000         0.032     0.500     0.030       0.034
3.000         0.097     0.500     0.095       0.099
4.000         0.182     0.500     0.180       0.184
5.000         0.292     0.500     0.290       0.294
6.000         0.402     0.500     0.400       0.404
-----

```

```

--
Hydrograph Detention Basin Routing
-----

```

```

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
-----

```

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)					
			.0		3.3	6.55	9.82	13.10
0.083	0.86	0.08	0.003	O I	|	|	|	|
0.17								
0.167	1.81	0.33	0.010	O I	|	|	|	|
0.65								
0.250	2.14	0.50	0.021	O I	|	|	|	|
1.33								
0.333	2.33	0.50	0.033	O I	|	|	|	|
2.02								
0.417	2.56	0.50	0.047	O I	|	|	|	|
2.22								
0.500	2.98	0.50	0.062	O I	|	|	|	|
2.47								
0.583	3.42	0.50	0.081	O I	|	|	|	|
2.75								
0.667	4.21	0.50	0.104	O I	|	|	|	|
3.08								
0.750	6.31	0.50	0.136	O I	|	I|	|	|
3.46								
0.833	13.10	0.50	0.200	O I	|	|	|	I
4.16								
0.917	9.87	0.50	0.275	O I	|	|	I	|
4.85								
1.000	3.15	0.50	0.317	O I	|	|	|	|
5.23								
1.083	0.90	0.50	0.327	OI	|	|	|	|
5.32								
1.167	0.05	0.50	0.327	IO	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

5.32									
1.250	0.00	0.50	0.324	IO	|	|	|	|	|
5.29									
1.333	0.00	0.50	0.321	IO	|	|	|	|	|
5.26									
1.417	0.00	0.50	0.317	IO	|	|	|	|	|
5.23									
1.500	0.00	0.50	0.314	IO	|	|	|	|	|
5.20									
1.583	0.00	0.50	0.310	IO	|	|	|	|	|
5.17									
1.667	0.00	0.50	0.307	IO	|	|	|	|	|
5.13									
1.750	0.00	0.50	0.303	IO	|	|	|	|	|
5.10									
1.833	0.00	0.50	0.300	IO	|	|	|	|	|
5.07									
1.917	0.00	0.50	0.296	IO	|	|	|	|	|
5.04									
2.000	0.00	0.50	0.293	IO	|	|	|	|	|
5.01									
2.083	0.00	0.50	0.290	IO	|	|	|	|	|
4.98									
2.167	0.00	0.50	0.286	IO	|	|	|	|	|
4.95									
2.250	0.00	0.50	0.283	IO	|	|	|	|	|
4.91									
2.333	0.00	0.50	0.279	IO	|	|	|	|	|
4.88									
2.417	0.00	0.50	0.276	IO	|	|	|	|	|
4.85									
2.500	0.00	0.50	0.272	IO	|	|	|	|	|
4.82									
2.583	0.00	0.50	0.269	IO	|	|	|	|	|
4.79									
2.667	0.00	0.50	0.265	IO	|	|	|	|	|
4.76									
2.750	0.00	0.50	0.262	IO	|	|	|	|	|
4.73									
2.833	0.00	0.50	0.259	IO	|	|	|	|	|
4.70									
2.917	0.00	0.50	0.255	IO	|	|	|	|	|
4.66									
3.000	0.00	0.50	0.252	IO	|	|	|	|	|
4.63									
3.083	0.00	0.50	0.248	IO	|	|	|	|	|
4.60									
3.167	0.00	0.50	0.245	IO	|	|	|	|	|
4.57									
3.250	0.00	0.50	0.241	IO	|	|	|	|	|
4.54									
3.333	0.00	0.50	0.238	IO	|	|	|	|	|
4.51									
3.417	0.00	0.50	0.234	IO	|	|	|	|	|
4.48									
3.500	0.00	0.50	0.231	IO	|	|	|	|	|
4.45									
3.583	0.00	0.50	0.228	IO	|	|	|	|	|
4.41									
3.667	0.00	0.50	0.224	IO	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4.38									
3.750	0.00	0.50	0.221	IO	|	|	|	|	|
4.35									
3.833	0.00	0.50	0.217	IO	|	|	|	|	|
4.32									
3.917	0.00	0.50	0.214	IO	|	|	|	|	|
4.29									
4.000	0.00	0.50	0.210	IO	|	|	|	|	|
4.26									
4.083	0.00	0.50	0.207	IO	|	|	|	|	|
4.23									
4.167	0.00	0.50	0.203	IO	|	|	|	|	|
4.19									
4.250	0.00	0.50	0.200	IO	|	|	|	|	|
4.16									
4.333	0.00	0.50	0.197	IO	|	|	|	|	|
4.13									
4.417	0.00	0.50	0.193	IO	|	|	|	|	|
4.10									
4.500	0.00	0.50	0.190	IO	|	|	|	|	|
4.07									
4.583	0.00	0.50	0.186	IO	|	|	|	|	|
4.04									
4.667	0.00	0.50	0.183	IO	|	|	|	|	|
4.01									
4.750	0.00	0.50	0.179	IO	|	|	|	|	|
3.97									
4.833	0.00	0.50	0.176	IO	|	|	|	|	|
3.93									
4.917	0.00	0.50	0.172	IO	|	|	|	|	|
3.89									
5.000	0.00	0.50	0.169	IO	|	|	|	|	|
3.85									
5.083	0.00	0.50	0.166	IO	|	|	|	|	|
3.81									
5.167	0.00	0.50	0.162	IO	|	|	|	|	|
3.77									
5.250	0.00	0.50	0.159	IO	|	|	|	|	|
3.73									
5.333	0.00	0.50	0.155	IO	|	|	|	|	|
3.69									
5.417	0.00	0.50	0.152	IO	|	|	|	|	|
3.64									
5.500	0.00	0.50	0.148	IO	|	|	|	|	|
3.60									
5.583	0.00	0.50	0.145	IO	|	|	|	|	|
3.56									
5.667	0.00	0.50	0.141	IO	|	|	|	|	|
3.52									
5.750	0.00	0.50	0.138	IO	|	|	|	|	|
3.48									
5.833	0.00	0.50	0.135	IO	|	|	|	|	|
3.44									
5.917	0.00	0.50	0.131	IO	|	|	|	|	|
3.40									
6.000	0.00	0.50	0.128	IO	|	|	|	|	|
3.36									
6.083	0.00	0.50	0.124	IO	|	|	|	|	|
3.32									
6.167	0.00	0.50	0.121	IO	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

3.28									
6.250	0.00	0.50	0.117	IO	|	|	|	|	|
3.24									
6.333	0.00	0.50	0.114	IO	|	|	|	|	|
3.20									
6.417	0.00	0.50	0.110	IO	|	|	|	|	|
3.16									
6.500	0.00	0.50	0.107	IO	|	|	|	|	|
3.12									
6.583	0.00	0.50	0.104	IO	|	|	|	|	|
3.08									
6.667	0.00	0.50	0.100	IO	|	|	|	|	|
3.04									
6.750	0.00	0.50	0.097	IO	|	|	|	|	|
3.00									
6.833	0.00	0.50	0.093	IO	|	|	|	|	|
2.94									
6.917	0.00	0.50	0.090	IO	|	|	|	|	|
2.89									
7.000	0.00	0.50	0.086	IO	|	|	|	|	|
2.84									
7.083	0.00	0.50	0.083	IO	|	|	|	|	|
2.78									
7.167	0.00	0.50	0.079	IO	|	|	|	|	|
2.73									
7.250	0.00	0.50	0.076	IO	|	|	|	|	|
2.68									
7.333	0.00	0.50	0.073	IO	|	|	|	|	|
2.62									
7.417	0.00	0.50	0.069	IO	|	|	|	|	|
2.57									
7.500	0.00	0.50	0.066	IO	|	|	|	|	|
2.52									
7.583	0.00	0.50	0.062	IO	|	|	|	|	|
2.47									
7.667	0.00	0.50	0.059	IO	|	|	|	|	|
2.41									
7.750	0.00	0.50	0.055	IO	|	|	|	|	|
2.36									
7.833	0.00	0.50	0.052	IO	|	|	|	|	|
2.31									
7.917	0.00	0.50	0.048	IO	|	|	|	|	|
2.25									
8.000	0.00	0.50	0.045	IO	|	|	|	|	|
2.20									
8.083	0.00	0.50	0.042	IO	|	|	|	|	|
2.15									
8.167	0.00	0.50	0.038	IO	|	|	|	|	|
2.09									
8.250	0.00	0.50	0.035	IO	|	|	|	|	|
2.04									
8.333	0.00	0.50	0.031	IO	|	|	|	|	|
1.95									
8.417	0.00	0.50	0.028	IO	|	|	|	|	|
1.74									
8.500	0.00	0.50	0.024	IO	|	|	|	|	|
1.52									
8.583	0.00	0.50	0.021	IO	|	|	|	|	|
1.31									
8.667	0.00	0.50	0.017	IO	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1.09									
8.750	0.00	0.44	0.014	IO	|	|	|	|	|
0.89									
8.833	0.00	0.36	0.011	O	|	|	|	|	|
0.72									
8.917	0.00	0.29	0.009	O	|	|	|	|	|
0.58									
9.000	0.00	0.23	0.007	O	|	|	|	|	|
0.47									
9.083	0.00	0.19	0.006	O	|	|	|	|	|
0.37									
9.167	0.00	0.15	0.005	O	|	|	|	|	|
0.30									
9.250	0.00	0.12	0.004	O	|	|	|	|	|
0.24									
9.333	0.00	0.10	0.003	O	|	|	|	|	|
0.20									
9.417	0.00	0.08	0.003	O	|	|	|	|	|
0.16									
9.500	0.00	0.06	0.002	O	|	|	|	|	|
0.13									
9.583	0.00	0.05	0.002	O	|	|	|	|	|
0.10									
9.667	0.00	0.04	0.001	O	|	|	|	|	|
0.08									
9.750	0.00	0.03	0.001	O	|	|	|	|	|
0.07									
9.833	0.00	0.03	0.001	O	|	|	|	|	|
0.05									
9.917	0.00	0.02	0.001	O	|	|	|	|	|
0.04									
10.000	0.00	0.02	0.001	O	|	|	|	|	|
0.03									
10.083	0.00	0.01	0.000	O	|	|	|	|	|
0.03									
10.167	0.00	0.01	0.000	O	|	|	|	|	|
0.02									
10.250	0.00	0.01	0.000	O	|	|	|	|	|
0.02									
10.333	0.00	0.01	0.000	O	|	|	|	|	|
0.01									
10.417	0.00	0.01	0.000	O	|	|	|	|	|
0.01									
10.500	0.00	0.00	0.000	O	|	|	|	|	|
0.01									
10.583	0.00	0.00	0.000	O	|	|	|	|	|
0.01									
10.667	0.00	0.00	0.000	O	|	|	|	|	|
0.01									
10.750	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
10.833	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
10.917	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
11.000	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
11.083	0.00	0.00	0.000	O	|	|	|	|	|
0.00									
11.167	0.00	0.00	0.000	O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.00

*****HYDROGRAPH

DATA*****

Number of intervals = 134
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 0.500 (CFS)
Total volume = 0.370 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	

0.000

Vol (Ac.Ft)	0.000	0.000	0.000	0.000	
-------------	-------	-------	-------	-------	--

0.000

--

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/11/21

Gateway Height
Basin Routing
Area A
100yr 3hr

--
Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION

From study/file name: moval33post3100.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 38
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.789 (CFS)
Total volume = 0.550 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
++++
Process from Point/Station 202.000 to Point/Station
203.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

--
Total number of inflow hydrograph intervals = 38
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

--

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)


```

--
Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)
-----

```

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--
Depth vs. Storage and Depth vs. Discharge data:
Basin Depth   Storage   Outflow   (S-O*dt/2)   (S+O*dt/2)
  (Ft.)       (Ac.Ft)   (CFS)     (Ac.Ft)     (Ac.Ft)
-----
0.000         0.000     0.000     0.000       0.000
1.000         0.016     0.500     0.014       0.018
2.000         0.032     0.500     0.030       0.034
3.000         0.097     0.500     0.095       0.099
4.000         0.182     0.500     0.180       0.184
5.000         0.292     24.000    0.209       0.375
6.000         0.402     24.000    0.319       0.485
-----

```

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

```

-----
Time   Inflow   Outflow   Storage
Depth
(Hours) (CFS)   (CFS)   (Ac.Ft) .0    1.7    3.39   5.09   6.79
(Ft.)
0.083  0.47    0.05    0.001  O I   |    |    |    |
0.09
0.167  0.84    0.16    0.005  O I   |    |    |    |
0.33
0.250  0.76    0.29    0.009  |O I  |    |    |    |
0.58
0.333  0.89    0.39    0.013  |O I  |    |    |    |
0.79
0.417  1.04    0.50    0.016  | O I |    |    |    |
1.01
0.500  1.20    0.50    0.020  | O I |    |    |    |
1.27
0.583  1.16    0.50    0.025  | O I |    |    |    |
1.57
0.667  1.21    0.50    0.030  | O I |    |    |    |
1.86
0.750  1.31    0.50    0.035  | O I |    |    |    |
2.05
0.833  1.17    0.50    0.040  | O I |    |    |    |
2.13
0.917  1.11    0.50    0.045  | O I |    |    |    |
2.19
1.000  1.24    0.50    0.049  | O I |    |    |    |
2.26
1.083  1.52    0.50    0.055  | O I |    |    |    |
2.36
1.167  1.68    0.50    0.063  | O I |    |    |    |

```

2.47										
1.250	1.69	0.50	0.071	| O	I|	|	|	|	|	|
2.60										
1.333	1.59	0.50	0.079	| O	I|	|	|	|	|	|
2.72										
1.417	1.81	0.50	0.087	| O	I	|	|	|	|	|
2.85										
1.500	2.09	0.50	0.097	| O	|I	|	|	|	|	|
3.00										
1.583	1.99	0.50	0.108	| O	|I	|	|	|	|	|
3.12										
1.667	2.03	0.50	0.118	| O	|I	|	|	|	|	|
3.25										
1.750	2.44	0.50	0.130	| O	| I	|	|	|	|	|
3.39										
1.833	2.58	0.50	0.144	| O	| I	|	|	|	|	|
3.55										
1.917	2.42	0.50	0.157	| O	| I	|	|	|	|	|
3.71										
2.000	2.38	0.50	0.171	| O	| I	|	|	|	|	|
3.87										
2.083	2.47	0.73	0.183	| O	| I	|	|	|	|	|
4.01										
2.167	3.06	2.45	0.191	|	| O I	|	|	|	|	|
4.08										
2.250	3.89	3.32	0.195	|	| O I	|	|	|	|	|
4.12										
2.333	3.48	3.63	0.197	|	| IO	|	|	|	|	|
4.13										
2.417	4.56	3.96	0.198	|	| O I	|	|	|	|	|
4.15										
2.500	6.06	5.11	0.204	|	| O I	|	|	|	|	|
4.20										
2.583	6.79	6.22	0.209	|	| O I	|	|	|	|	|
4.24										
2.667	6.00	6.37	0.209	|	| I O	|	|	|	|	|
4.25										
2.750	3.19	4.87	0.202	|	| I O	|	|	|	|	|
4.19										
2.833	1.51	2.73	0.192	|	| I O	|	|	|	|	|
4.09										
2.917	1.33	1.62	0.187	|	| IO	|	|	|	|	|
4.05										
3.000	0.79	1.14	0.185	| I O	|	|	|	|	|	|
4.03										
3.083	0.18	0.58	0.182	I O	|	|	|	|	|	|
4.00										
3.167	0.01	0.50	0.179	I O	|	|	|	|	|	|
3.97										
3.250	0.00	0.50	0.176	I O	|	|	|	|	|	|
3.93										
3.333	0.00	0.50	0.172	I O	|	|	|	|	|	|
3.89										
3.417	0.00	0.50	0.169	I O	|	|	|	|	|	|
3.85										
3.500	0.00	0.50	0.166	I O	|	|	|	|	|	|
3.81										
3.583	0.00	0.50	0.162	I O	|	|	|	|	|	|
3.77										
3.667	0.00	0.50	0.159	I O	|	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

3.73									
3.750	0.00	0.50	0.155	I O	|	|	|	|	|
3.69									
3.833	0.00	0.50	0.152	I O	|	|	|	|	|
3.64									
3.917	0.00	0.50	0.148	I O	|	|	|	|	|
3.60									
4.000	0.00	0.50	0.145	I O	|	|	|	|	|
3.56									
4.083	0.00	0.50	0.141	I O	|	|	|	|	|
3.52									
4.167	0.00	0.50	0.138	I O	|	|	|	|	|
3.48									
4.250	0.00	0.50	0.135	I O	|	|	|	|	|
3.44									
4.333	0.00	0.50	0.131	I O	|	|	|	|	|
3.40									
4.417	0.00	0.50	0.128	I O	|	|	|	|	|
3.36									
4.500	0.00	0.50	0.124	I O	|	|	|	|	|
3.32									
4.583	0.00	0.50	0.121	I O	|	|	|	|	|
3.28									
4.667	0.00	0.50	0.117	I O	|	|	|	|	|
3.24									
4.750	0.00	0.50	0.114	I O	|	|	|	|	|
3.20									
4.833	0.00	0.50	0.110	I O	|	|	|	|	|
3.16									
4.917	0.00	0.50	0.107	I O	|	|	|	|	|
3.12									
5.000	0.00	0.50	0.104	I O	|	|	|	|	|
3.08									
5.083	0.00	0.50	0.100	I O	|	|	|	|	|
3.04									
5.167	0.00	0.50	0.097	I O	|	|	|	|	|
3.00									
5.250	0.00	0.50	0.093	I O	|	|	|	|	|
2.94									
5.333	0.00	0.50	0.090	I O	|	|	|	|	|
2.89									
5.417	0.00	0.50	0.086	I O	|	|	|	|	|
2.84									
5.500	0.00	0.50	0.083	I O	|	|	|	|	|
2.78									
5.583	0.00	0.50	0.079	I O	|	|	|	|	|
2.73									
5.667	0.00	0.50	0.076	I O	|	|	|	|	|
2.68									
5.750	0.00	0.50	0.073	I O	|	|	|	|	|
2.62									
5.833	0.00	0.50	0.069	I O	|	|	|	|	|
2.57									
5.917	0.00	0.50	0.066	I O	|	|	|	|	|
2.52									
6.000	0.00	0.50	0.062	I O	|	|	|	|	|
2.47									
6.083	0.00	0.50	0.059	I O	|	|	|	|	|
2.41									
6.167	0.00	0.50	0.055	I O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

2.36									
6.250	0.00	0.50	0.052	I O	|	|	|	|	|
2.31									
6.333	0.00	0.50	0.049	I O	|	|	|	|	|
2.25									
6.417	0.00	0.50	0.045	I O	|	|	|	|	|
2.20									
6.500	0.00	0.50	0.042	I O	|	|	|	|	|
2.15									
6.583	0.00	0.50	0.038	I O	|	|	|	|	|
2.09									
6.667	0.00	0.50	0.035	I O	|	|	|	|	|
2.04									
6.750	0.00	0.50	0.031	I O	|	|	|	|	|
1.96									
6.833	0.00	0.50	0.028	I O	|	|	|	|	|
1.74									
6.917	0.00	0.50	0.024	I O	|	|	|	|	|
1.52									
7.000	0.00	0.50	0.021	I O	|	|	|	|	|
1.31									
7.083	0.00	0.50	0.018	I O	|	|	|	|	|
1.09									
7.167	0.00	0.45	0.014	I O	|	|	|	|	|
0.89									
7.250	0.00	0.36	0.011	IO	|	|	|	|	|
0.72									
7.333	0.00	0.29	0.009	IO	|	|	|	|	|
0.58									
7.417	0.00	0.23	0.007	IO	|	|	|	|	|
0.47									
7.500	0.00	0.19	0.006	O	|	|	|	|	|
0.38									
7.583	0.00	0.15	0.005	O	|	|	|	|	|
0.30									
7.667	0.00	0.12	0.004	O	|	|	|	|	|
0.24									
7.750	0.00	0.10	0.003	O	|	|	|	|	|
0.20									
7.833	0.00	0.08	0.003	O	|	|	|	|	|
0.16									
7.917	0.00	0.06	0.002	O	|	|	|	|	|
0.13									
8.000	0.00	0.05	0.002	O	|	|	|	|	|
0.10									
8.083	0.00	0.04	0.001	O	|	|	|	|	|
0.08									
8.167	0.00	0.03	0.001	O	|	|	|	|	|
0.07									
8.250	0.00	0.03	0.001	O	|	|	|	|	|
0.05									
8.333	0.00	0.02	0.001	O	|	|	|	|	|
0.04									
8.417	0.00	0.02	0.001	O	|	|	|	|	|
0.03									
8.500	0.00	0.01	0.000	O	|	|	|	|	|
0.03									
8.583	0.00	0.01	0.000	O	|	|	|	|	|
0.02									
8.667	0.00	0.01	0.000	O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.02									
8.750	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
8.833	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
8.917	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
9.000	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
9.083	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
9.167	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
9.250	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
9.333	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
9.417	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
9.500	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
9.583	0.00	0.00	0.000	o	|	|	|	|	|
0.00									

*****HYDROGRAPH
DATA*****
Number of intervals = 115
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.371 (CFS)
Total volume = 0.550 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000

--

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/11/21

Gateway Height
Basin Routing
Area A
100yr 6hr

--
Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION

From study/file name: moval33post6100.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 74
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.065 (CFS)
Total volume = 0.695 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
++++
Process from Point/Station 202.000 to Point/Station
203.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

--
Total number of inflow hydrograph intervals = 74
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

--

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.016	0.500	0.014	0.018
2.000	0.032	0.500	0.030	0.034
3.000	0.097	0.500	0.095	0.099
4.000	0.182	0.500	0.180	0.184
5.000	0.292	24.000	0.209	0.375
6.000	0.402	24.000	0.319	0.485

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)					
			.0		1.5	3.03	4.55	6.06
0.083	0.21	0.02	0.001	OI	|	|	|	|
0.167	0.41	0.08	0.002	O I	|	|	|	|
0.250	0.46	0.15	0.005	O I	|	|	|	|
0.333	0.46	0.21	0.007	|OI	|	|	|	|
0.417	0.46	0.26	0.008	|OI	|	|	|	|
0.500	0.50	0.30	0.010	|OI	|	|	|	|
0.583	0.54	0.34	0.011	|OI	|	|	|	|
0.667	0.54	0.38	0.012	| O	|	|	|	|
0.750	0.54	0.41	0.013	| O	|	|	|	|
0.833	0.54	0.44	0.014	| O	|	|	|	|
0.917	0.54	0.46	0.015	| O	|	|	|	|
1.000	0.61	0.48	0.015	| OI	|	|	|	|
1.083	0.66	0.50	0.016	| OI	|	|	|	|
1.167	0.66	0.50	0.017	| OI	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

1.09									
1.250	0.66	0.50	0.019	OI	|	|	|	|	|
1.16									
1.333	0.66	0.50	0.020	OI	|	|	|	|	|
1.23									
1.417	0.66	0.50	0.021	OI	|	|	|	|	|
1.30									
1.500	0.66	0.50	0.022	OI	|	|	|	|	|
1.37									
1.583	0.66	0.50	0.023	OI	|	|	|	|	|
1.44									
1.667	0.66	0.50	0.024	OI	|	|	|	|	|
1.51									
1.750	0.66	0.50	0.025	OI	|	|	|	|	|
1.58									
1.833	0.66	0.50	0.026	OI	|	|	|	|	|
1.65									
1.917	0.66	0.50	0.028	OI	|	|	|	|	|
1.72									
2.000	0.73	0.50	0.029	OI	|	|	|	|	|
1.80									
2.083	0.72	0.50	0.030	OI	|	|	|	|	|
1.90									
2.167	0.73	0.50	0.032	OI	|	|	|	|	|
2.00									
2.250	0.78	0.50	0.034	O I	|	|	|	|	|
2.03									
2.333	0.79	0.50	0.036	O I	|	|	|	|	|
2.06									
2.417	0.79	0.50	0.038	O I	|	|	|	|	|
2.09									
2.500	0.79	0.50	0.040	O I	|	|	|	|	|
2.12									
2.583	0.79	0.50	0.042	O I	|	|	|	|	|
2.15									
2.667	0.79	0.50	0.044	O I	|	|	|	|	|
2.18									
2.750	0.85	0.50	0.046	O I	|	|	|	|	|
2.21									
2.833	0.91	0.50	0.048	O I	|	|	|	|	|
2.25									
2.917	0.91	0.50	0.051	O I	|	|	|	|	|
2.30									
3.000	0.91	0.50	0.054	O I	|	|	|	|	|
2.34									
3.083	0.91	0.50	0.057	O I	|	|	|	|	|
2.38									
3.167	0.98	0.50	0.060	O I	|	|	|	|	|
2.43									
3.250	1.03	0.50	0.063	O I	|	|	|	|	|
2.48									
3.333	1.03	0.50	0.067	O I	|	|	|	|	|
2.54									
3.417	1.10	0.50	0.071	O I	|	|	|	|	|
2.60									
3.500	1.22	0.50	0.075	O I	|	|	|	|	|
2.67									
3.583	1.34	0.50	0.081	O I	|	|	|	|	|
2.75									
3.667	1.40	0.50	0.087	O I	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

2.84									
3.750	1.47	0.50	0.093	| O	I |	|	|	|	|
2.94									
3.833	1.52	0.50	0.100	| O	I	|	|	|	|
3.04									
3.917	1.59	0.50	0.107	| O	I	|	|	|	|
3.12									
4.000	1.65	0.50	0.115	| O	I	|	|	|	|
3.21									
4.083	1.72	0.50	0.123	| O	| I	|	|	|	|
3.31									
4.167	1.84	0.50	0.132	| O	| I	|	|	|	|
3.41									
4.250	1.96	0.50	0.142	| O	| I	|	|	|	|
3.53									
4.333	2.08	0.50	0.152	| O	| I	|	|	|	|
3.65									
4.417	2.21	0.50	0.164	| O	| I	|	|	|	|
3.78									
4.500	2.26	0.50	0.176	| O	| I	|	|	|	|
3.92									
4.583	2.33	1.23	0.185	|	O |	I	|	|	|
4.03									
4.667	2.45	2.22	0.190	|	|	O I	|	|	|
4.07									
4.750	2.58	2.47	0.191	|	|	O	|	|	|
4.08									
4.833	2.63	2.59	0.192	|	|	O	|	|	|
4.09									
4.917	2.70	2.66	0.192	|	|	O	|	|	|
4.09									
5.000	2.82	2.75	0.193	|	|	O	|	|	|
4.10									
5.083	3.22	2.98	0.194	|	|	O I	|	|	|
4.11									
5.167	3.82	3.44	0.196	|	|	|	O I	|	|
4.12									
5.250	4.30	3.97	0.198	|	|	|	O I	|	|
4.15									
5.333	4.68	4.41	0.200	|	|	|	O I	|	|
4.17									
5.417	5.19	4.85	0.202	|	|	|	|	O I	|
4.19									
5.500	6.06	5.51	0.205	|	|	|	|	O I	|
4.21									
5.583	4.06	5.13	0.204	|	|	|	I	O	|
4.20									
5.667	1.48	3.13	0.194	|	I |	O	|	|	|
4.11									
5.750	0.64	1.38	0.186	| I	O |	|	|	|	|
4.04									
5.833	0.43	0.66	0.183	| IO	|	|	|	|	|
4.01									
5.917	0.30	0.50	0.181	| IO	|	|	|	|	|
3.99									
6.000	0.19	0.50	0.180	| IO	|	|	|	|	|
3.97									
6.083	0.07	0.50	0.177	I O	|	|	|	|	|
3.94									
6.167	0.00	0.50	0.174	I O	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

3.90									
6.250	0.00	0.50	0.170	I O	|	|	|	|	|
3.86									
6.333	0.00	0.50	0.167	I O	|	|	|	|	|
3.82									
6.417	0.00	0.50	0.163	I O	|	|	|	|	|
3.78									
6.500	0.00	0.50	0.160	I O	|	|	|	|	|
3.74									
6.583	0.00	0.50	0.157	I O	|	|	|	|	|
3.70									
6.667	0.00	0.50	0.153	I O	|	|	|	|	|
3.66									
6.750	0.00	0.50	0.150	I O	|	|	|	|	|
3.62									
6.833	0.00	0.50	0.146	I O	|	|	|	|	|
3.58									
6.917	0.00	0.50	0.143	I O	|	|	|	|	|
3.54									
7.000	0.00	0.50	0.139	I O	|	|	|	|	|
3.50									
7.083	0.00	0.50	0.136	I O	|	|	|	|	|
3.46									
7.167	0.00	0.50	0.132	I O	|	|	|	|	|
3.42									
7.250	0.00	0.50	0.129	I O	|	|	|	|	|
3.38									
7.333	0.00	0.50	0.126	I O	|	|	|	|	|
3.34									
7.417	0.00	0.50	0.122	I O	|	|	|	|	|
3.30									
7.500	0.00	0.50	0.119	I O	|	|	|	|	|
3.26									
7.583	0.00	0.50	0.115	I O	|	|	|	|	|
3.22									
7.667	0.00	0.50	0.112	I O	|	|	|	|	|
3.17									
7.750	0.00	0.50	0.108	I O	|	|	|	|	|
3.13									
7.833	0.00	0.50	0.105	I O	|	|	|	|	|
3.09									
7.917	0.00	0.50	0.102	I O	|	|	|	|	|
3.05									
8.000	0.00	0.50	0.098	I O	|	|	|	|	|
3.01									
8.083	0.00	0.50	0.095	I O	|	|	|	|	|
2.96									
8.167	0.00	0.50	0.091	I O	|	|	|	|	|
2.91									
8.250	0.00	0.50	0.088	I O	|	|	|	|	|
2.86									
8.333	0.00	0.50	0.084	I O	|	|	|	|	|
2.80									
8.417	0.00	0.50	0.081	I O	|	|	|	|	|
2.75									
8.500	0.00	0.50	0.077	I O	|	|	|	|	|
2.70									
8.583	0.00	0.50	0.074	I O	|	|	|	|	|
2.65									
8.667	0.00	0.50	0.071	I O	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.59									
8.750	0.00	0.50	0.067	I O	|	|	|	|	|
2.54									
8.833	0.00	0.50	0.064	I O	|	|	|	|	|
2.49									
8.917	0.00	0.50	0.060	I O	|	|	|	|	|
2.43									
9.000	0.00	0.50	0.057	I O	|	|	|	|	|
2.38									
9.083	0.00	0.50	0.053	I O	|	|	|	|	|
2.33									
9.167	0.00	0.50	0.050	I O	|	|	|	|	|
2.27									
9.250	0.00	0.50	0.046	I O	|	|	|	|	|
2.22									
9.333	0.00	0.50	0.043	I O	|	|	|	|	|
2.17									
9.417	0.00	0.50	0.040	I O	|	|	|	|	|
2.12									
9.500	0.00	0.50	0.036	I O	|	|	|	|	|
2.06									
9.583	0.00	0.50	0.033	I O	|	|	|	|	|
2.01									
9.667	0.00	0.50	0.029	I O	|	|	|	|	|
1.82									
9.750	0.00	0.50	0.026	I O	|	|	|	|	|
1.61									
9.833	0.00	0.50	0.022	I O	|	|	|	|	|
1.39									
9.917	0.00	0.50	0.019	I O	|	|	|	|	|
1.18									
10.000	0.00	0.48	0.015	I O	|	|	|	|	|
0.97									
10.083	0.00	0.39	0.012	I O	|	|	|	|	|
0.78									
10.167	0.00	0.31	0.010	IO	|	|	|	|	|
0.63									
10.250	0.00	0.25	0.008	IO	|	|	|	|	|
0.51									
10.333	0.00	0.20	0.007	IO	|	|	|	|	|
0.41									
10.417	0.00	0.16	0.005	O	|	|	|	|	|
0.33									
10.500	0.00	0.13	0.004	O	|	|	|	|	|
0.26									
10.583	0.00	0.11	0.003	O	|	|	|	|	|
0.21									
10.667	0.00	0.09	0.003	O	|	|	|	|	|
0.17									
10.750	0.00	0.07	0.002	O	|	|	|	|	|
0.14									
10.833	0.00	0.06	0.002	O	|	|	|	|	|
0.11									
10.917	0.00	0.04	0.001	O	|	|	|	|	|
0.09									
11.000	0.00	0.04	0.001	O	|	|	|	|	|
0.07									
11.083	0.00	0.03	0.001	O	|	|	|	|	|
0.06									
11.167	0.00	0.02	0.001	O	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

0.05									
11.250	0.00	0.02	0.001	o	|	|	|	|	|
0.04									
11.333	0.00	0.02	0.000	o	|	|	|	|	|
0.03									
11.417	0.00	0.01	0.000	o	|	|	|	|	|
0.02									
11.500	0.00	0.01	0.000	o	|	|	|	|	|
0.02									
11.583	0.00	0.01	0.000	o	|	|	|	|	|
0.02									
11.667	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
11.750	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
11.833	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
11.917	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
12.000	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
12.083	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
12.167	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
12.250	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
12.333	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
12.417	0.00	0.00	0.000	o	|	|	|	|	|
0.00									

```

*****HYDROGRAPH
DATA*****
          Number of intervals = 149
          Time interval = 5.0 (Min.)
          Maximum/Peak flow rate = 5.508 (CFS)
          Total volume = 0.695 (Ac.Ft)
          Status of hydrographs being held in storage
          Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
          Peak (CFS) 0.000 0.000 0.000 0.000
          Vol (Ac.Ft) 0.000 0.000 0.000 0.000
*****

```

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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/11/21

Gateway Height
Basin Routing
Area A
100yr 24hr

--
Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION

From study/file name: moval33post24100.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 290
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.267 (CFS)
Total volume = 1.168 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
Process from Point/Station 202.000 to Point/Station
203.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

--
Total number of inflow hydrograph intervals = 290
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

--

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

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--
Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)
-----

```

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Depth vs. Storage and Depth vs. Discharge data:
Basin Depth   Storage   Outflow   (S-O*dt/2)   (S+O*dt/2)
  (Ft.)       (Ac.Ft)   (CFS)     (Ac.Ft)     (Ac.Ft)
-----
0.000         0.000     0.000     0.000       0.000
1.000         0.016     0.500     0.014       0.018
2.000         0.032     0.500     0.030       0.034
3.000         0.097     0.500     0.095       0.099
4.000         0.182     0.500     0.180       0.184
5.000         0.292     24.000    0.209       0.375
6.000         0.402     24.000    0.319       0.485
-----

```

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

```

-----
Time   Inflow   Outflow   Storage
Depth (Hours) (CFS)   (CFS)   (Ac.Ft)
(Ft.)
0.083  0.05     0.00     0.000  O
0.01
0.167  0.09     0.02     0.001  OI
0.04
0.250  0.09     0.03     0.001  OI
0.06
0.333  0.12     0.05     0.001  OI
0.09
0.417  0.14     0.06     0.002  OI
0.12
0.500  0.14     0.08     0.002  |O
0.15
0.583  0.14     0.09     0.003  |O
0.18
0.667  0.14     0.10     0.003  |O
0.20
0.750  0.14     0.11     0.003  |O
0.21
0.833  0.16     0.12     0.004  |OI
0.23
0.917  0.18     0.13     0.004  |OI
0.25
1.000  0.19     0.14     0.004  |OI
0.28
1.083  0.16     0.14     0.005  | O
0.29
1.167  0.14     0.15     0.005  |IO
-----

```

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

0.29									
1.250	0.14	0.14	0.005	|IO	|	|	|	|	|
0.29									
1.333	0.14	0.14	0.005	|IO	|	|	|	|	|
0.29									
1.417	0.14	0.14	0.005	|IO	|	|	|	|	|
0.29									
1.500	0.14	0.14	0.005	|IO	|	|	|	|	|
0.28									
1.583	0.14	0.14	0.005	|O	|	|	|	|	|
0.28									
1.667	0.14	0.14	0.005	|O	|	|	|	|	|
0.28									
1.750	0.14	0.14	0.005	|O	|	|	|	|	|
0.28									
1.833	0.16	0.14	0.005	|O	|	|	|	|	|
0.29									
1.917	0.18	0.15	0.005	|O	|	|	|	|	|
0.30									
2.000	0.19	0.16	0.005	|O	|	|	|	|	|
0.31									
2.083	0.19	0.16	0.005	|O	|	|	|	|	|
0.32									
2.167	0.19	0.17	0.005	|O	|	|	|	|	|
0.33									
2.250	0.19	0.17	0.005	|O	|	|	|	|	|
0.34									
2.333	0.19	0.17	0.006	|O	|	|	|	|	|
0.35									
2.417	0.19	0.18	0.006	|O	|	|	|	|	|
0.35									
2.500	0.19	0.18	0.006	|O	|	|	|	|	|
0.36									
2.583	0.21	0.18	0.006	|O	|	|	|	|	|
0.36									
2.667	0.23	0.19	0.006	|OI	|	|	|	|	|
0.38									
2.750	0.23	0.20	0.006	|OI	|	|	|	|	|
0.39									
2.833	0.23	0.20	0.007	|OI	|	|	|	|	|
0.41									
2.917	0.23	0.21	0.007	|OI	|	|	|	|	|
0.42									
3.000	0.23	0.21	0.007	|O	|	|	|	|	|
0.43									
3.083	0.23	0.22	0.007	|O	|	|	|	|	|
0.43									
3.167	0.23	0.22	0.007	|O	|	|	|	|	|
0.44									
3.250	0.23	0.22	0.007	|O	|	|	|	|	|
0.45									
3.333	0.23	0.22	0.007	|O	|	|	|	|	|
0.45									
3.417	0.23	0.23	0.007	O					
0.45									
3.500	0.23	0.23	0.007	O					
0.45									
3.583	0.23	0.23	0.007	O					
0.46									
3.667	0.23	0.23	0.007	O					

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0.46									
3.750	0.23	0.23	0.007	O					
0.46									
3.833	0.26	0.23	0.007	O					
0.46									
3.917	0.28	0.24	0.008	O					
0.48									
4.000	0.28	0.25	0.008	O					
0.49									
4.083	0.28	0.25	0.008	O					
0.51									
4.167	0.28	0.26	0.008	O					
0.52									
4.250	0.28	0.26	0.008	O					
0.52									
4.333	0.30	0.27	0.009	OI					
0.54									
4.417	0.32	0.28	0.009	OI					
0.55									
4.500	0.32	0.29	0.009	O					
0.57									
4.583	0.32	0.29	0.009	O					
0.59									
4.667	0.32	0.30	0.010	O					
0.60									
4.750	0.32	0.30	0.010	O					
0.61									
4.833	0.35	0.31	0.010	O					
0.62									
4.917	0.37	0.32	0.010	OI					
0.64									
5.000	0.37	0.33	0.011	OI					
0.66									
5.083	0.32	0.33	0.011	O					
0.67									
5.167	0.28	0.33	0.010	IO					
0.65									
5.250	0.28	0.32	0.010	IO					
0.64									
5.333	0.30	0.31	0.010	O					
0.63									
5.417	0.32	0.31	0.010	O					
0.63									
5.500	0.32	0.32	0.010	O					
0.63									
5.583	0.35	0.32	0.010	O					
0.64									
5.667	0.37	0.33	0.010	OI					
0.65									
5.750	0.37	0.34	0.011	OI					
0.67									
5.833	0.37	0.34	0.011	OI					
0.69									
5.917	0.37	0.35	0.011	OI					
0.70									
6.000	0.37	0.35	0.011	OI					
0.71									
6.083	0.40	0.36	0.011	O					
0.72									
6.167	0.42	0.37	0.012	O					

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0.74									
6.250	0.42	0.38	0.012		O				
0.76									
6.333	0.42	0.39	0.012		O				
0.77									
6.417	0.42	0.39	0.013		O				
0.78									
6.500	0.42	0.40	0.013		O				
0.79									
6.583	0.44	0.40	0.013	|	OI	|	|	|	|
0.81									
6.667	0.46	0.41	0.013	|	OI	|	|	|	|
0.83									
6.750	0.46	0.42	0.014	|	OI	|	|	|	|
0.85									
6.833	0.46	0.43	0.014	|	O	|	|	|	|
0.86									
6.917	0.46	0.44	0.014	|	O	|	|	|	|
0.87									
7.000	0.46	0.44	0.014	|	O	|	|	|	|
0.88									
7.083	0.46	0.45	0.014	|	O	|	|	|	|
0.89									
7.167	0.46	0.45	0.014	|	O	|	|	|	|
0.90									
7.250	0.46	0.45	0.014	|	O	|	|	|	|
0.91									
7.333	0.49	0.46	0.015	|	O	|	|	|	|
0.91									
7.417	0.51	0.47	0.015	|	OI	|	|	|	|
0.93									
7.500	0.51	0.47	0.015	|	OI	|	|	|	|
0.95									
7.583	0.54	0.48	0.015	|	OI	|	|	|	|
0.97									
7.667	0.56	0.50	0.016	|	OI	|	|	|	|
0.99									
7.750	0.56	0.50	0.016	|	O	|	|	|	|
1.02									
7.833	0.58	0.50	0.017	|	OI	|	|	|	|
1.05									
7.917	0.60	0.50	0.017	|	OI	|	|	|	|
1.09									
8.000	0.60	0.50	0.018	|	OI	|	|	|	|
1.13									
8.083	0.68	0.50	0.019	|	O|I	|	|	|	|
1.19									
8.167	0.74	0.50	0.020	|	O| I	|	|	|	|
1.28									
8.250	0.74	0.50	0.022	|	O| I	|	|	|	|
1.38									
8.333	0.75	0.50	0.024	|	O| I	|	|	|	|
1.49									
8.417	0.75	0.50	0.026		O I				
1.60									
8.500	0.75	0.50	0.027		O I				
1.70									
8.583	0.79	0.50	0.029		O I				
1.82									
8.667	0.82	0.50	0.031		O I				

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1.95									
8.750	0.83	0.50	0.033		O	I			
2.02									
8.833	0.87	0.50	0.036		O	I			
2.06									
8.917	0.90	0.50	0.039		O	I			
2.10									
9.000	0.91	0.50	0.041		O	I			
2.14									
9.083	0.99	0.50	0.044	|	O|	I	|	|	|
2.19									
9.167	1.06	0.50	0.048	|	O|	I	|	|	|
2.25									
9.250	1.06	0.50	0.052	|	O|	I	|	|	|
2.31									
9.333	1.11	0.50	0.056	|	O|	I	|	|	|
2.37									
9.417	1.14	0.50	0.060	|	O|	I	|	|	|
2.43									
9.500	1.14	0.50	0.065	|	O|	I	|	|	|
2.50									
9.583	1.19	0.50	0.069	|	O|	I	|	|	|
2.57									
9.667	1.22	0.50	0.074	|	O|	I	|	|	|
2.65									
9.750	1.22	0.50	0.079	|	O|	I	|	|	|
2.72									
9.833	1.27	0.50	0.084	|	O|	I	|	|	|
2.80									
9.917	1.30	0.50	0.090	|	O|	I	|	|	|
2.89									
10.000	1.30	0.50	0.095	|	O|	I	|	|	|
2.97									
10.083	1.02	0.50	0.100	|	O|	I	|	|	|
3.03									
10.167	0.80	0.50	0.102	|	O|	I	|	|	|
3.06									
10.250	0.78	0.50	0.104	|	O|	I	|	|	|
3.09									
10.333	0.79	0.50	0.106	|	O|	I	|	|	|
3.11									
10.417	0.79	0.50	0.108	|	O|	I	|	|	|
3.13									
10.500	0.79	0.50	0.110	|	O|	I	|	|	|
3.16									
10.583	1.00	0.50	0.113	|	O|	I	|	|	|
3.19									
10.667	1.16	0.50	0.117	|	O|	I	|	|	|
3.24									
10.750	1.17	0.50	0.122	|	O|	I	|	|	|
3.29									
10.833	1.17	0.50	0.126	|	O|	I	|	|	|
3.34									
10.917	1.17	0.50	0.131	|	O|	I	|	|	|
3.40									
11.000	1.17	0.50	0.135		O	I			
3.45									
11.083	1.13	0.50	0.140		O	I			
3.51									
11.167	1.10	0.50	0.144		O	I			

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3.56									
11.250	1.10	0.50	0.148		O	I			
3.60									
11.333	1.10	0.50	0.153		O	I			
3.65									
11.417	1.11	0.50	0.157		O	I			
3.70									
11.500	1.11	0.50	0.161	|	O|	I|	|	|	|
3.75									
11.583	1.03	0.50	0.165	|	O|	I|	|	|	|
3.80									
11.667	0.97	0.50	0.168	|	O|	I|	|	|	|
3.84									
11.750	0.96	0.50	0.171	|	O|	I|	|	|	|
3.88									
11.833	1.01	0.50	0.175	|	O|	I|	|	|	|
3.92									
11.917	1.04	0.50	0.178	|	O|	I|	|	|	|
3.96									
12.000	1.04	0.51	0.182	|	O|	I|	|	|	|
4.00									
12.083	1.33	1.08	0.185	|	|	O| I	|	|	|
4.02									
12.167	1.55	1.39	0.186	|	|	| O I	|	|	|
4.04									
12.250	1.57	1.54	0.187	|	|	| OI	|	|	|
4.04									
12.333	1.61	1.58	0.187	|	|	| O	|	|	|
4.05									
12.417	1.65	1.62	0.187	|	|	| OI|	|	|	|
4.05									
12.500	1.65	1.64	0.187	|	|	| O|	|	|	|
4.05									
12.583	1.73	1.68	0.188	|	|	| OI	|	|	|
4.05									
12.667	1.80	1.75	0.188	|	|	| OI	|	|	|
4.05									
12.750	1.80	1.79	0.188	|	|	| |O	|	|	|
4.06									
12.833	1.85	1.82	0.188	|	|	| |OI	|	|	|
4.06									
12.917	1.88	1.86	0.188	|	|	| |O	|	|	|
4.06									
13.000	1.88	1.88	0.188	|	|	| |O	|	|	|
4.06									
13.083	2.09	1.97	0.189	|	|	| |O I	|	|	|
4.06									
13.167	2.25	2.14	0.190	|	|	| |OI|	|	|	|
4.07									
13.250	2.26	2.24	0.190	|	|	| |O|	|	|	|
4.07									
13.333	2.26	2.26	0.190	|	|	| |O|	|	|	|
4.07									
13.417	2.27	2.26	0.190	|	|	| |O|	|	|	|
4.08									
13.500	2.27	2.27	0.190			OI			
4.08									
13.583	1.82	2.08	0.189			I O			
4.07									
13.667	1.47	1.71	0.188			I O			

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4.05									
13.750	1.45	1.50	0.187				IO		
4.04									
13.833	1.45	1.46	0.186				O		
4.04									
13.917	1.45	1.45	0.186				O		
4.04									
14.000	1.45	1.45	0.186	|	|	|	O	|	|
4.04									
14.083	1.62	1.52	0.187	|	|	|	OI	|	|
4.04									
14.167	1.75	1.66	0.187	|	|	|	OI	|	|
4.05									
14.250	1.76	1.74	0.188	|	|	|	O	|	|
4.05									
14.333	1.72	1.74	0.188	|	|	|	O	|	|
4.05									
14.417	1.69	1.71	0.188	|	|	|	IO	|	|
4.05									
14.500	1.68	1.69	0.188	|	|	|	O|	|	|
4.05									
14.583	1.69	1.69	0.188	|	|	|	O|	|	|
4.05									
14.667	1.69	1.69	0.188	|	|	|	O|	|	|
4.05									
14.750	1.69	1.69	0.188	|	|	|	O|	|	|
4.05									
14.833	1.65	1.67	0.187	|	|	|	O|	|	|
4.05									
14.917	1.62	1.64	0.187	|	|	|	IO|	|	|
4.05									
15.000	1.62	1.62	0.187	|	|	|	O	|	|
4.05									
15.083	1.58	1.60	0.187	|	|	|	O	|	|
4.05									
15.167	1.55	1.57	0.187	|	|	|	IO	|	|
4.05									
15.250	1.55	1.55	0.187	|	|	|	O	|	|
4.04									
15.333	1.51	1.53	0.187	|	|	|	O	|	|
4.04									
15.417	1.48	1.50	0.187	|	|	|	IO	|	|
4.04									
15.500	1.48	1.48	0.187	|	|	|	O	|	|
4.04									
15.583	1.31	1.41	0.186	|	|	|	IO	|	|
4.04									
15.667	1.19	1.27	0.186	|	|	|	IO	|	|
4.03									
15.750	1.18	1.20	0.185	|	|	|	O	|	|
4.03									
15.833	1.18	1.18	0.185	|	|	|	O	|	|
4.03									
15.917	1.18	1.18	0.185				O		
4.03									
16.000	1.18	1.18	0.185				O		
4.03									
16.083	0.64	0.95	0.184			I O			
4.02									
16.167	0.21	0.51	0.182		I O				

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4.00									
16.250	0.19	0.50	0.180	I	O				
3.98									
16.333	0.19	0.50	0.178	I	O				
3.95									
16.417	0.19	0.50	0.176	I	O				
3.92									
16.500	0.19	0.50	0.173	| I	O|	|	|	|	|
3.90									
16.583	0.16	0.50	0.171	| I	O|	|	|	|	|
3.87									
16.667	0.14	0.50	0.169	| I	O|	|	|	|	|
3.84									
16.750	0.14	0.50	0.166	| I	O|	|	|	|	|
3.82									
16.833	0.14	0.50	0.164	| I	O|	|	|	|	|
3.79									
16.917	0.14	0.50	0.161	| I	O|	|	|	|	|
3.76									
17.000	0.14	0.50	0.159	| I	O|	|	|	|	|
3.73									
17.083	0.19	0.50	0.157	| I	O|	|	|	|	|
3.70									
17.167	0.23	0.50	0.155	| I	O|	|	|	|	|
3.68									
17.250	0.23	0.50	0.153	| I	O|	|	|	|	|
3.66									
17.333	0.23	0.50	0.151	| I	O|	|	|	|	|
3.63									
17.417	0.23	0.50	0.149	| I	O|	|	|	|	|
3.61									
17.500	0.23	0.50	0.147	| I	O|	|	|	|	|
3.59									
17.583	0.23	0.50	0.145	| I	O|	|	|	|	|
3.57									
17.667	0.23	0.50	0.143	| I	O|	|	|	|	|
3.55									
17.750	0.23	0.50	0.142	| I	O|	|	|	|	|
3.52									
17.833	0.21	0.50	0.140	| I	O|	|	|	|	|
3.50									
17.917	0.19	0.50	0.138	| I	O|	|	|	|	|
3.48									
18.000	0.19	0.50	0.135	| I	O|	|	|	|	|
3.45									
18.083	0.19	0.50	0.133	| I	O|	|	|	|	|
3.43									
18.167	0.19	0.50	0.131	| I	O|	|	|	|	|
3.40									
18.250	0.19	0.50	0.129	| I	O|	|	|	|	|
3.38									
18.333	0.19	0.50	0.127	| I	O|	|	|	|	|
3.35									
18.417	0.19	0.50	0.125	| I	O|	|	|	|	|
3.32									
18.500	0.19	0.50	0.122	I	O				
3.30									
18.583	0.16	0.50	0.120	I	O				
3.27									
18.667	0.14	0.50	0.118	I	O				

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3.24									
18.750	0.14	0.50	0.115	I	O				
3.22									
18.833	0.11	0.50	0.113	I	O				
3.19									
18.917	0.09	0.50	0.110	I	O				
3.15									
19.000	0.09	0.50	0.107	|I	O|	|	|	|	|
3.12									
19.083	0.12	0.50	0.104	|I	O|	|	|	|	|
3.09									
19.167	0.14	0.50	0.102	|I	O|	|	|	|	|
3.06									
19.250	0.14	0.50	0.099	|I	O|	|	|	|	|
3.03									
19.333	0.16	0.50	0.097	|I	O|	|	|	|	|
3.00									
19.417	0.18	0.50	0.095	|I	O|	|	|	|	|
2.97									
19.500	0.19	0.50	0.093	|I	O|	|	|	|	|
2.93									
19.583	0.16	0.50	0.090	|I	O|	|	|	|	|
2.90									
19.667	0.14	0.50	0.088	|I	O|	|	|	|	|
2.86									
19.750	0.14	0.50	0.085	|I	O|	|	|	|	|
2.82									
19.833	0.11	0.50	0.083	|I	O|	|	|	|	|
2.78									
19.917	0.09	0.50	0.080	|I	O|	|	|	|	|
2.74									
20.000	0.09	0.50	0.077	|I	O|	|	|	|	|
2.70									
20.083	0.12	0.50	0.075	|I	O|	|	|	|	|
2.66									
20.167	0.14	0.50	0.072	|I	O|	|	|	|	|
2.62									
20.250	0.14	0.50	0.070	|I	O|	|	|	|	|
2.58									
20.333	0.14	0.50	0.067	|I	O|	|	|	|	|
2.54									
20.417	0.14	0.50	0.065	|I	O|	|	|	|	|
2.50									
20.500	0.14	0.50	0.062	|I	O|	|	|	|	|
2.46									
20.583	0.14	0.50	0.060	|I	O|	|	|	|	|
2.43									
20.667	0.14	0.50	0.057	|I	O|	|	|	|	|
2.39									
20.750	0.14	0.50	0.055	|I	O|	|	|	|	|
2.35									
20.833	0.11	0.50	0.052	|I	O|	|	|	|	|
2.31									
20.917	0.09	0.50	0.049	|I	O|	|	|	|	|
2.27									
21.000	0.09	0.50	0.047	I	O				
2.22									
21.083	0.12	0.50	0.044	I	O				
2.18									
21.167	0.14	0.50	0.041	I	O				

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2.14									
21.250	0.14	0.50	0.039	I	O				
2.11									
21.333	0.11	0.50	0.036	I	O				
2.07									
21.417	0.09	0.50	0.034	I	O				
2.02									
21.500	0.09	0.50	0.031	|I	O|	|	|	|	|
1.92									
21.583	0.12	0.50	0.028	|I	O|	|	|	|	|
1.75									
21.667	0.14	0.50	0.025	|I	O|	|	|	|	|
1.59									
21.750	0.14	0.50	0.023	|I	O|	|	|	|	|
1.44									
21.833	0.11	0.50	0.020	|I	O|	|	|	|	|
1.28									
21.917	0.09	0.50	0.018	|I	O|	|	|	|	|
1.11									
22.000	0.09	0.47	0.015	|I	O|	|	|	|	|
0.94									
22.083	0.12	0.40	0.013	|I	O|	|	|	|	|
0.80									
22.167	0.14	0.35	0.011	|I	O|	|	|	|	|
0.69									
22.250	0.14	0.31	0.010	|I	O|	|	|	|	|
0.61									
22.333	0.11	0.27	0.009	|I	O|	|	|	|	|
0.54									
22.417	0.09	0.24	0.008	|I	O|	|	|	|	|
0.48									
22.500	0.09	0.21	0.007	|IO	|	|	|	|	|
0.42									
22.583	0.09	0.19	0.006	|IO	|	|	|	|	|
0.37									
22.667	0.09	0.17	0.005	|IO	|	|	|	|	|
0.34									
22.750	0.09	0.15	0.005	|IO	|	|	|	|	|
0.31									
22.833	0.09	0.14	0.005	|IO	|	|	|	|	|
0.28									
22.917	0.09	0.13	0.004	|O	|	|	|	|	|
0.27									
23.000	0.09	0.12	0.004	|O	|	|	|	|	|
0.25									
23.083	0.09	0.12	0.004	|O	|	|	|	|	|
0.24									
23.167	0.09	0.11	0.004	|O	|	|	|	|	|
0.23									
23.250	0.09	0.11	0.004	|O	|	|	|	|	|
0.22									
23.333	0.09	0.11	0.003	|O	|	|	|	|	|
0.21									
23.417	0.09	0.10	0.003	O					
0.21									
23.500	0.09	0.10	0.003	O					
0.20									
23.583	0.09	0.10	0.003	O					
0.20									
23.667	0.09	0.10	0.003	O					

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0.20									
23.750	0.09	0.10	0.003	o					
0.19									
23.833	0.09	0.10	0.003	o					
0.19									
23.917	0.09	0.10	0.003	o					
0.19									
24.000	0.09	0.10	0.003	o					
0.19									
24.083	0.04	0.09	0.003	IO	|	|	|	|	|
0.18									
24.167	0.00	0.08	0.002	IO	|	|	|	|	|
0.15									
24.250	0.00	0.06	0.002	o	|	|	|	|	|
0.12									
24.333	0.00	0.05	0.002	o	|	|	|	|	|
0.10									
24.417	0.00	0.04	0.001	o	|	|	|	|	|
0.08									
24.500	0.00	0.03	0.001	o	|	|	|	|	|
0.06									
24.583	0.00	0.03	0.001	o	|	|	|	|	|
0.05									
24.667	0.00	0.02	0.001	o	|	|	|	|	|
0.04									
24.750	0.00	0.02	0.001	o	|	|	|	|	|
0.03									
24.833	0.00	0.01	0.000	o	|	|	|	|	|
0.03									
24.917	0.00	0.01	0.000	o	|	|	|	|	|
0.02									
25.000	0.00	0.01	0.000	o	|	|	|	|	|
0.02									
25.083	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
25.167	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
25.250	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
25.333	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
25.417	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
25.500	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.583	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.667	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.750	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.833	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.917	0.00	0.00	0.000	o	|	|	|	|	|
0.00									

*****HYDROGRAPH
 DATA*****
 Number of intervals = 311
 Time interval = 5.0 (Min.)

Maximum/Peak flow rate = 2.266 (CFS)
Total volume = 1.167 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000

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FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/09/21

Gateway Heights
Basin Routing
2 yr 24hr
Basin B

--
Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION

From study/file name: moval33post242.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 291
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 1.789 (CFS)
Total volume = 1.087 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
++++
Process from Point/Station 102.000 to Point/Station
103.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

--
Total number of inflow hydrograph intervals = 291
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

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Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.060	0.700	0.058	0.062
2.000	0.120	0.700	0.118	0.122
3.000	0.320	0.700	0.318	0.322
4.000	0.560	0.700	0.558	0.562
5.000	0.820	24.000	0.737	0.903
6.000	1.100	24.000	1.017	1.183

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)					
			.0	0	0.4	0.89	1.34	1.79
0.083	0.05	0.00	0.000	O	|	|	|	|
0.167	0.10	0.01	0.001	OI	|	|	|	|
0.250	0.10	0.01	0.001	OI	|	|	|	|
0.333	0.13	0.02	0.002	O I	|	|	|	|
0.417	0.15	0.03	0.003	O I	|	|	|	|
0.500	0.16	0.04	0.004	O I	|	|	|	|
0.583	0.16	0.05	0.004	O I	|	|	|	|
0.667	0.16	0.06	0.005	|OI	|	|	|	|
0.750	0.16	0.07	0.006	|OI	|	|	|	|
0.833	0.18	0.07	0.006	|O I	|	|	|	|
0.917	0.21	0.08	0.007	|O I	|	|	|	|
1.000	0.21	0.09	0.008	|O I	|	|	|	|
1.083	0.19	0.10	0.009	|O I	|	|	|	|
1.167	0.16	0.11	0.009	|OI	|	|	|	|

0.15									
1.250	0.16	0.11	0.010	OI	|	|	|	|	|
0.16									
1.333	0.16	0.11	0.010	O	|	|	|	|	|
0.16									
1.417	0.16	0.12	0.010	O	|	|	|	|	|
0.17									
1.500	0.16	0.12	0.010	O	|	|	|	|	|
0.17									
1.583	0.16	0.12	0.011	O	|	|	|	|	|
0.18									
1.667	0.16	0.13	0.011	O	|	|	|	|	|
0.18									
1.750	0.16	0.13	0.011	O	|	|	|	|	|
0.18									
1.833	0.18	0.13	0.011	OI	|	|	|	|	|
0.19									
1.917	0.21	0.14	0.012	OI	|	|	|	|	|
0.20									
2.000	0.21	0.14	0.012	OI	|	|	|	|	|
0.20									
2.083	0.21	0.15	0.013	OI	|	|	|	|	|
0.21									
2.167	0.21	0.15	0.013	OI	|	|	|	|	|
0.22									
2.250	0.21	0.16	0.013	OI	|	|	|	|	|
0.22									
2.333	0.21	0.16	0.014	OI	|	|	|	|	|
0.23									
2.417	0.21	0.16	0.014	OI	|	|	|	|	|
0.24									
2.500	0.21	0.17	0.014	O	|	|	|	|	|
0.24									
2.583	0.23	0.17	0.015	OI	|	|	|	|	|
0.25									
2.667	0.26	0.18	0.015	OI	|	|	|	|	|
0.25									
2.750	0.26	0.18	0.016	OI	|	|	|	|	|
0.26									
2.833	0.26	0.19	0.016	OI	|	|	|	|	|
0.27									
2.917	0.26	0.20	0.017	OI	|	|	|	|	|
0.28									
3.000	0.26	0.20	0.017	OI	|	|	|	|	|
0.29									
3.083	0.26	0.21	0.018	OI	|	|	|	|	|
0.29									
3.167	0.26	0.21	0.018	OI	|	|	|	|	|
0.30									
3.250	0.26	0.21	0.018	OI	|	|	|	|	|
0.31									
3.333	0.26	0.22	0.019	OI	|	|	|	|	|
0.31									
3.417	0.26	0.22	0.019	OI	|	|	|	|	|
0.32									
3.500	0.26	0.23	0.019	O	|	|	|	|	|
0.32									
3.583	0.26	0.23	0.020	O	|	|	|	|	|
0.33									
3.667	0.26	0.23	0.020	O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.33									
3.750	0.26	0.23	0.020	O					
0.33									
3.833	0.29	0.24	0.020	OI					
0.34									
3.917	0.31	0.24	0.021	OI					
0.34									
4.000	0.32	0.25	0.021	OI					
0.35									
4.083	0.32	0.25	0.022	OI					
0.36									
4.167	0.32	0.26	0.022	OI					
0.37									
4.250	0.32	0.26	0.022	OI					
0.37									
4.333	0.34	0.27	0.023	O I					
0.38									
4.417	0.36	0.27	0.023	O I					
0.39									
4.500	0.37	0.28	0.024	OI					
0.40									
4.583	0.37	0.29	0.025	OI					
0.41									
4.667	0.37	0.29	0.025	OI					
0.42									
4.750	0.37	0.30	0.026	OI					
0.43									
4.833	0.39	0.31	0.026	O I					
0.44									
4.917	0.42	0.31	0.027	O I					
0.45									
5.000	0.42	0.32	0.028	O I					
0.46									
5.083	0.37	0.33	0.028	OI					
0.47									
5.167	0.32	0.33	0.028	O					
0.47									
5.250	0.32	0.33	0.028	O					
0.47									
5.333	0.34	0.33	0.028	OI					
0.47									
5.417	0.36	0.33	0.028	OI					
0.47									
5.500	0.37	0.33	0.029	OI					
0.48									
5.583	0.39	0.34	0.029	OI					
0.48									
5.667	0.42	0.34	0.029	OI					
0.49									
5.750	0.42	0.35	0.030	OI					
0.50									
5.833	0.42	0.35	0.030	OI					
0.50									
5.917	0.42	0.36	0.031	OI					
0.51									
6.000	0.42	0.36	0.031	OI					
0.52									
6.083	0.44	0.37	0.032	OI					
0.53									
6.167	0.47	0.38	0.032	O I					

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.54								
6.250	0.47	0.38	0.033	|	O I	|	|	|
0.55								
6.333	0.47	0.39	0.033	|	O I	|	|	|
0.56								
6.417	0.47	0.40	0.034	|	OI	|	|	|
0.57								
6.500	0.47	0.40	0.034	|	OI	|	|	|
0.57								
6.583	0.50	0.41	0.035	|	OI	|	|	|
0.58								
6.667	0.52	0.42	0.036	|	O|I	|	|	|
0.60								
6.750	0.53	0.42	0.036	|	O|I	|	|	|
0.61								
6.833	0.53	0.43	0.037	|	O|I	|	|	|
0.62								
6.917	0.53	0.44	0.038	|	O|I	|	|	|
0.63								
7.000	0.53	0.45	0.038	|	O|I	|	|	|
0.64								
7.083	0.53	0.45	0.039	|	OI	|	|	|
0.65								
7.167	0.53	0.46	0.039	|	OI	|	|	|
0.65								
7.250	0.53	0.46	0.040	|	OI	|	|	|
0.66								
7.333	0.55	0.47	0.040	|	OI	|	|	|
0.67								
7.417	0.58	0.48	0.041	|	O I	|	|	|
0.68								
7.500	0.58	0.48	0.042	|	O I	|	|	|
0.69								
7.583	0.60	0.49	0.042	|	O I	|	|	|
0.70								
7.667	0.63	0.50	0.043	|	O I	|	|	|
0.72								
7.750	0.63	0.51	0.044	|	|O I	|	|	|
0.73								
7.833	0.65	0.52	0.045	|	|O I	|	|	|
0.75								
7.917	0.68	0.53	0.046	|	|O I	|	|	|
0.76								
8.000	0.68	0.54	0.047	|	|O I	|	|	|
0.78								
8.083	0.73	0.56	0.048	|	|O I	|	|	|
0.80								
8.167	0.78	0.57	0.049	|	| O I	|	|	|
0.82								
8.250	0.79	0.59	0.050	|	| O I	|	|	|
0.84								
8.333	0.79	0.60	0.052	|	| O I	|	|	|
0.86								
8.417	0.79	0.62	0.053	|	| O I	|	|	|
0.88								
8.500	0.79	0.63	0.054	|	| O I	|	|	|
0.90								
8.583	0.81	0.64	0.055	|	| O I	|	|	|
0.92								
8.667	0.84	0.66	0.056	|	| O I	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1.90										
11.250	1.00	0.70	0.116	|	|	O	|I	|	|	|
1.94										
11.333	1.00	0.70	0.118	|	|	O	|I	|	|	|
1.97										
11.417	1.00	0.70	0.120	|	|	O	|I	|	|	|
2.00										
11.500	1.00	0.70	0.123	|	|	O	|I	|	|	|
2.01										
11.583	0.95	0.70	0.124	|	|	O	|I	|	|	|
2.02										
11.667	0.90	0.70	0.126	|	|	O	I	|	|	|
2.03										
11.750	0.90	0.70	0.127	|	|	O	I	|	|	|
2.04										
11.833	0.92	0.70	0.129	|	|	O	I	|	|	|
2.04										
11.917	0.94	0.70	0.130	|	|	O	I	|	|	|
2.05										
12.000	0.95	0.70	0.132	|	|	O	I	|	|	|
2.06										
12.083	1.11	0.70	0.134	|	|	O	|	I	|	|
2.07										
12.167	1.29	0.70	0.138	|	|	O	|	I	|	|
2.09										
12.250	1.31	0.70	0.142	|	|	O	|	I	|	|
2.11										
12.333	1.34	0.70	0.146	|	|	O	|	I	|	|
2.13										
12.417	1.36	0.70	0.151	|	|	O	|	I	|	|
2.15										
12.500	1.37	0.70	0.155	|	|	O	|	I	|	|
2.18										
12.583	1.41	0.70	0.160	|	|	O	|	I	|	|
2.20										
12.667	1.47	0.70	0.165	|	|	O	|	I	|	|
2.23										
12.750	1.47	0.70	0.170	|	|	O	|	I	|	|
2.25										
12.833	1.50	0.70	0.176	|	|	O	|	I	|	|
2.28										
12.917	1.52	0.70	0.181	|	|	O	|	I	|	|
2.31										
13.000	1.53	0.70	0.187	|	|	O	|	I	|	|
2.34										
13.083	1.64	0.70	0.193	|	|	O	|	I	|	|
2.37										
13.167	1.77	0.70	0.200	|	|	O	|	I	|	|
2.40										
13.250	1.79	0.70	0.208	|	|	O	|	I	|	|
2.44										
13.333	1.79	0.70	0.215	|	|	O	|	I	|	|
2.48										
13.417	1.79	0.70	0.223	|	|	O	|	I	|	|
2.51										
13.500	1.79	0.70	0.230	|	|	O	|	I	|	|
2.55										
13.583	1.53	0.70	0.237	|	|	O	|	I	|	|
2.58										
13.667	1.25	0.70	0.241	|	|	O	|	I	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.61										
13.750	1.21	0.70	0.245	|	|	O	|	I	|	|
2.63										
13.833	1.21	0.70	0.249	|	|	O	|	I	|	|
2.64										
13.917	1.21	0.70	0.252	|	|	O	|	I	|	|
2.66										
14.000	1.21	0.70	0.256	|	|	O	|	I	|	|
2.68										
14.083	1.30	0.70	0.259	|	|	O	|	I	|	|
2.70										
14.167	1.41	0.70	0.264	|	|	O	|	|	I	|
2.72										
14.250	1.42	0.70	0.269	|	|	O	|	|	I	|
2.74										
14.333	1.40	0.70	0.274	|	|	O	|	I	|	|
2.77										
14.417	1.37	0.70	0.278	|	|	O	|	I	|	|
2.79										
14.500	1.37	0.70	0.283	|	|	O	|	I	|	|
2.82										
14.583	1.37	0.70	0.288	|	|	O	|	I	|	|
2.84										
14.667	1.37	0.70	0.292	|	|	O	|	I	|	|
2.86										
14.750	1.37	0.70	0.297	|	|	O	|	I	|	|
2.88										
14.833	1.34	0.70	0.301	|	|	O	|	I	|	|
2.91										
14.917	1.32	0.70	0.306	|	|	O	|	I	|	|
2.93										
15.000	1.32	0.70	0.310	|	|	O	|	I	|	|
2.95										
15.083	1.29	0.70	0.314	|	|	O	|	I	|	|
2.97										
15.167	1.27	0.70	0.318	|	|	O	|	I	|	|
2.99										
15.250	1.26	0.70	0.322	|	|	O	|	I	|	|
3.01										
15.333	1.24	0.70	0.326	|	|	O	|	I	|	|
3.02										
15.417	1.21	0.70	0.329	|	|	O	|	I	|	|
3.04										
15.500	1.21	0.70	0.333	|	|	O	|	I	|	|
3.05										
15.583	1.12	0.70	0.336	|	|	O	|	I	|	|
3.07										
15.667	1.01	0.70	0.339	|	|	O	|	I	|	|
3.08										
15.750	1.00	0.70	0.341	|	|	O	|	I	|	|
3.09										
15.833	1.00	0.70	0.343	|	|	O	|	I	|	|
3.10										
15.917	1.00	0.70	0.345	|	|	O	|	I	|	|
3.10										
16.000	1.00	0.70	0.347	|	|	O	|	I	|	|
3.11										
16.083	0.65	0.70	0.348	|	|	IO	|	|	|	|
3.12										
16.167	0.26	0.70	0.346	|	I	|	O	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

3.11									
16.250	0.22	0.70	0.343	I		O			
3.10									
16.333	0.21	0.70	0.340	I		O			
3.08									
16.417	0.21	0.70	0.336	I		O			
3.07									
16.500	0.21	0.70	0.333	I		O			
3.05									
16.583	0.19	0.70	0.329	I		O			
3.04									
16.667	0.16	0.70	0.326	I		O			
3.02									
16.750	0.16	0.70	0.322	I		O			
3.01									
16.833	0.16	0.70	0.318	I		O			
2.99									
16.917	0.16	0.70	0.315	I		O			
2.97									
17.000	0.16	0.70	0.311	I		O			
2.95									
17.083	0.20	0.70	0.307	I		O			
2.94									
17.167	0.26	0.70	0.304	I		O			
2.92									
17.250	0.26	0.70	0.301	I		O			
2.90									
17.333	0.26	0.70	0.298	I		O			
2.89									
17.417	0.26	0.70	0.295	I		O			
2.87									
17.500	0.26	0.70	0.292	I		O			
2.86									
17.583	0.26	0.70	0.289	I		O			
2.84									
17.667	0.26	0.70	0.286	I		O			
2.83									
17.750	0.26	0.70	0.283	I		O			
2.81									
17.833	0.24	0.70	0.280	I		O			
2.80									
17.917	0.21	0.70	0.277	I		O			
2.78									
18.000	0.21	0.70	0.273	I		O			
2.77									
18.083	0.21	0.70	0.270	I		O			
2.75									
18.167	0.21	0.70	0.266	I		O			
2.73									
18.250	0.21	0.70	0.263	I		O			
2.72									
18.333	0.21	0.70	0.260	I		O			
2.70									
18.417	0.21	0.70	0.256	I		O			
2.68									
18.500	0.21	0.70	0.253	I		O			
2.66									
18.583	0.19	0.70	0.250	I		O			
2.65									
18.667	0.16	0.70	0.246	I		O			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

2.63									
18.750	0.16	0.70	0.242	| I	|	o	|	|	|
2.61									
18.833	0.13	0.70	0.238	| I	|	o	|	|	|
2.59									
18.917	0.11	0.70	0.234	| I	|	o	|	|	|
2.57									
19.000	0.11	0.70	0.230	| I	|	o	|	|	|
2.55									
19.083	0.13	0.70	0.226	| I	|	o	|	|	|
2.53									
19.167	0.15	0.70	0.222	| I	|	o	|	|	|
2.51									
19.250	0.16	0.70	0.219	| I	|	o	|	|	|
2.49									
19.333	0.18	0.70	0.215	| I	|	o	|	|	|
2.48									
19.417	0.21	0.70	0.212	| I	|	o	|	|	|
2.46									
19.500	0.21	0.70	0.208	| I	|	o	|	|	|
2.44									
19.583	0.19	0.70	0.205	| I	|	o	|	|	|
2.42									
19.667	0.16	0.70	0.201	| I	|	o	|	|	|
2.41									
19.750	0.16	0.70	0.197	| I	|	o	|	|	|
2.39									
19.833	0.13	0.70	0.194	| I	|	o	|	|	|
2.37									
19.917	0.11	0.70	0.190	| I	|	o	|	|	|
2.35									
20.000	0.11	0.70	0.186	| I	|	o	|	|	|
2.33									
20.083	0.13	0.70	0.181	| I	|	o	|	|	|
2.31									
20.167	0.15	0.70	0.178	| I	|	o	|	|	|
2.29									
20.250	0.16	0.70	0.174	| I	|	o	|	|	|
2.27									
20.333	0.16	0.70	0.170	| I	|	o	|	|	|
2.25									
20.417	0.16	0.70	0.166	| I	|	o	|	|	|
2.23									
20.500	0.16	0.70	0.163	| I	|	o	|	|	|
2.21									
20.583	0.16	0.70	0.159	| I	|	o	|	|	|
2.19									
20.667	0.16	0.70	0.155	| I	|	o	|	|	|
2.18									
20.750	0.16	0.70	0.151	| I	|	o	|	|	|
2.16									
20.833	0.13	0.70	0.148	| I	|	o	|	|	|
2.14									
20.917	0.11	0.70	0.144	| I	|	o	|	|	|
2.12									
21.000	0.11	0.70	0.140	| I	|	o	|	|	|
2.10									
21.083	0.13	0.70	0.136	| I	|	o	|	|	|
2.08									
21.167	0.15	0.70	0.132	| I	|	o	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

2.06										
21.250	0.16	0.70	0.128	| I	|	o	|	|	|	|
2.04										
21.333	0.13	0.70	0.124	| I	|	o	|	|	|	|
2.02										
21.417	0.11	0.70	0.120	| I	|	o	|	|	|	|
2.00										
21.500	0.11	0.70	0.116	| I	|	o	|	|	|	|
1.94										
21.583	0.13	0.70	0.112	| I	|	o	|	|	|	|
1.87										
21.667	0.15	0.70	0.108	| I	|	o	|	|	|	|
1.80										
21.750	0.16	0.70	0.105	| I	|	o	|	|	|	|
1.74										
21.833	0.13	0.70	0.101	| I	|	o	|	|	|	|
1.68										
21.917	0.11	0.70	0.097	| I	|	o	|	|	|	|
1.61										
22.000	0.11	0.70	0.093	| I	|	o	|	|	|	|
1.54										
22.083	0.13	0.70	0.089	| I	|	o	|	|	|	|
1.48										
22.167	0.15	0.70	0.085	| I	|	o	|	|	|	|
1.41										
22.250	0.16	0.70	0.081	| I	|	o	|	|	|	|
1.35										
22.333	0.13	0.70	0.077	| I	|	o	|	|	|	|
1.29										
22.417	0.11	0.70	0.073	| I	|	o	|	|	|	|
1.22										
22.500	0.11	0.70	0.069	| I	|	o	|	|	|	|
1.15										
22.583	0.11	0.70	0.065	| I	|	o	|	|	|	|
1.08										
22.667	0.11	0.70	0.061	| I	|	o	|	|	|	|
1.02										
22.750	0.11	0.66	0.057	| I	|	o	|	|	|	|
0.95										
22.833	0.11	0.62	0.053	| I	|	o	|	|	|	|
0.89										
22.917	0.11	0.58	0.050	| I	|	o	|	|	|	|
0.83										
23.000	0.11	0.54	0.047	| I	|	o	|	|	|	|
0.78										
23.083	0.11	0.51	0.044	| I	|	o	|	|	|	|
0.73										
23.167	0.11	0.48	0.041	| I	|	o	|	|	|	|
0.69										
23.250	0.11	0.45	0.039	| I	|	o	|	|	|	|
0.64										
23.333	0.11	0.42	0.036	| I	|	o	|	|	|	|
0.61										
23.417	0.11	0.40	0.034	| I	|	o	|	|	|	|
0.57										
23.500	0.11	0.38	0.032	| I	|	o	|	|	|	|
0.54										
23.583	0.11	0.36	0.030	| I	|	o	|	|	|	|
0.51										
23.667	0.11	0.34	0.029	| I	|	o	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

0.48									
23.750	0.11	0.32	0.027	|I	O	|	|	|	|
0.45									
23.833	0.11	0.30	0.026	|I	O	|	|	|	|
0.43									
23.917	0.11	0.29	0.025	|I	O	|	|	|	|
0.41									
24.000	0.11	0.27	0.023	|I	O	|	|	|	|
0.39									
24.083	0.06	0.26	0.022	|I	O	|	|	|	|
0.37									
24.167	0.01	0.24	0.021	I	O	|	|	|	|
0.34									
24.250	0.00	0.22	0.019	I	O	|	|	|	|
0.32									
24.333	0.00	0.21	0.018	I	O	|	|	|	|
0.29									
24.417	0.00	0.19	0.016	I	O	|	|	|	|
0.27									
24.500	0.00	0.17	0.015	I	O	|	|	|	|
0.25									
24.583	0.00	0.16	0.014	I	O	|	|	|	|
0.23									
24.667	0.00	0.15	0.013	I	O	|	|	|	|
0.21									
24.750	0.00	0.14	0.012	I	O	|	|	|	|
0.20									
24.833	0.00	0.13	0.011	I	O	|	|	|	|
0.18									
24.917	0.00	0.12	0.010	I	O	|	|	|	|
0.17									
25.000	0.00	0.11	0.009	IO		|	|	|	|
0.15									
25.083	0.00	0.10	0.009	IO		|	|	|	|
0.14									
25.167	0.00	0.09	0.008	IO		|	|	|	|
0.13									
25.250	0.00	0.08	0.007	IO		|	|	|	|
0.12									
25.333	0.00	0.08	0.007	IO		|	|	|	|
0.11									
25.417	0.00	0.07	0.006	IO		|	|	|	|
0.10									
25.500	0.00	0.07	0.006	IO		|	|	|	|
0.10									
25.583	0.00	0.06	0.005	IO		|	|	|	|
0.09									
25.667	0.00	0.06	0.005	IO		|	|	|	|
0.08									
25.750	0.00	0.05	0.004	O		|	|	|	|
0.07									
25.833	0.00	0.05	0.004	O		|	|	|	|
0.07									
25.917	0.00	0.04	0.004	O		|	|	|	|
0.06									
26.000	0.00	0.04	0.004	O		|	|	|	|
0.06									
26.083	0.00	0.04	0.003	O		|	|	|	|
0.05									
26.167	0.00	0.03	0.003	O		|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.05									
26.250	0.00	0.03	0.003	o	|	|	|	|	|
0.05									
26.333	0.00	0.03	0.003	o	|	|	|	|	|
0.04									
26.417	0.00	0.03	0.002	o	|	|	|	|	|
0.04									
26.500	0.00	0.03	0.002	o	|	|	|	|	|
0.04									
26.583	0.00	0.02	0.002	o	|	|	|	|	|
0.03									
26.667	0.00	0.02	0.002	o	|	|	|	|	|
0.03									
26.750	0.00	0.02	0.002	o	|	|	|	|	|
0.03									
26.833	0.00	0.02	0.002	o	|	|	|	|	|
0.03									
26.917	0.00	0.02	0.001	o	|	|	|	|	|
0.02									
27.000	0.00	0.02	0.001	o	|	|	|	|	|
0.02									
27.083	0.00	0.01	0.001	o	|	|	|	|	|
0.02									
27.167	0.00	0.01	0.001	o	|	|	|	|	|
0.02									
27.250	0.00	0.01	0.001	o	|	|	|	|	|
0.02									
27.333	0.00	0.01	0.001	o	|	|	|	|	|
0.02									
27.417	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.500	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.583	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.667	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.750	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.833	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.917	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
28.000	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
28.083	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
28.167	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
28.250	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
28.333	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
28.417	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
28.500	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
28.583	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
28.667	0.00	0.00	0.000	o	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.00									
28.750	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
28.833	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
28.917	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.000	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.083	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.167	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.250	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.333	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.417	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.500	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.583	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.667	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.750	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.833	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.917	0.00	0.00	0.000	o	|	|	|	|	|
0.00									

```

*****HYDROGRAPH
DATA*****
          Number of intervals = 359
          Time interval = 5.0 (Min.)
          Maximum/Peak flow rate = 0.700 (CFS)
          Total volume = 1.087 (Ac.Ft)
          Status of hydrographs being held in storage
          Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
          Peak (CFS) 0.000 0.000 0.000 0.000
          Vol (Ac.Ft) 0.000 0.000 0.000 0.000
*****

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FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/09/21

Gateway Heights
Basin Routing
100yr 1hr
Basin C ← Now Basin B

Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION *****

From study/file name: moval33post1100.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 15
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 32.689 (CFS)
Total volume = 1.008 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
Process from Point/Station 102.000 to Point/Station
103.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 15
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)


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--
Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)
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Depth vs. Storage and Depth vs. Discharge data:
Basin Depth   Storage   Outflow   (S-O*dt/2)   (S+O*dt/2)
  (Ft.)       (Ac.Ft)   (CFS)     (Ac.Ft)     (Ac.Ft)
-----
0.000         0.000     0.000     0.000       0.000
1.000         0.060     0.010     0.060       0.060
2.000         0.120     0.010     0.120       0.120
3.000         0.320     0.010     0.320       0.320
4.000         0.560     0.010     0.560       0.560
5.000         0.820     24.000    0.737       0.903
6.000         1.100     24.000    1.017       1.183
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Hydrograph Detention Basin Routing
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Graph values: 'I'= unit inflow; 'O'=outflow at time shown
-----

```

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)						
			.0			8.2	16.34	24.52	32.69
0.083	1.92	0.00	0.007	OI	|	|	|	|	|
0.11									
0.167	4.65	0.00	0.029	O I	|	|	|	|	|
0.49									
0.250	5.72	0.01	0.065	O I	|	|	|	|	|
1.08									
0.333	6.27	0.01	0.106	O I	|	|	|	|	|
1.77									
0.417	6.89	0.01	0.151	O I	|	|	|	|	|
2.16									
0.500	7.93	0.01	0.202	O I	|	|	|	|	|
2.41									
0.583	9.16	0.01	0.261	O I	|	|	|	|	|
2.71									
0.667	11.12	0.01	0.331	O I	|	I	|	|	|
3.05									
0.750	16.30	0.01	0.425	O I	|	I	|	|	|
3.44									
0.833	32.69	2.38	0.586	O I	|	|	|	|	I
4.10									
0.917	29.54	16.24	0.736	|	|	O	|	I	|
4.68									
1.000	10.25	18.00	0.755	|	|	I	O	|	|
4.75									
1.083	3.47	12.63	0.697	I	|	O	|	|	|
4.53									
1.167	0.37	7.46	0.641	I	O	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4.31									
1.250	0.04	3.96	0.603	I O	|	|	|	|	|
4.16									
1.333	0.00	2.06	0.582	I O	|	|	|	|	|
4.09									
1.417	0.00	1.07	0.571	IO	|	|	|	|	|
4.04									
1.500	0.00	0.55	0.566	O	|	|	|	|	|
4.02									
1.583	0.00	0.29	0.563	O	|	|	|	|	|
4.01									
1.667	0.00	0.15	0.561	O	|	|	|	|	|
4.01									
1.750	0.00	0.08	0.561	O	|	|	|	|	|
4.00									
1.833	0.00	0.04	0.560	O	|	|	|	|	|
4.00									
1.917	0.00	0.02	0.560	O	|	|	|	|	|
4.00									
2.000	0.00	0.01	0.560	O	|	|	|	|	|
4.00									
2.083	0.00	0.01	0.560	O	|	|	|	|	|
4.00									
2.167	0.00	0.01	0.560	O	|	|	|	|	|
4.00									
2.250	0.00	0.01	0.560	O	|	|	|	|	|
4.00									
2.333	0.00	0.01	0.560	O	|	|	|	|	|
4.00									
2.417	0.00	0.01	0.560	O	|	|	|	|	|
4.00									
2.500	0.00	0.01	0.560	O	|	|	|	|	|
4.00									
2.583	0.00	0.01	0.560	O	|	|	|	|	|
4.00									
2.667	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
2.750	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
2.833	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
2.917	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
3.000	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
3.083	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
3.167	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
3.250	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
3.333	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
3.417	0.00	0.01	0.559	O	|	|	|	|	|
4.00									
3.500	0.00	0.01	0.559	O	|	|	|	|	|
3.99									
3.583	0.00	0.01	0.559	O	|	|	|	|	|
3.99									
3.667	0.00	0.01	0.559	O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

2.49									
416.250	0.00	0.01	0.218	O	|	|	|	|	|
2.49									
416.333	0.00	0.01	0.218	O	|	|	|	|	|
2.49									
416.417	0.00	0.01	0.218	O	|	|	|	|	|
2.49									
416.500	0.00	0.01	0.217	O	|	|	|	|	|
2.49									
416.583	0.00	0.01	0.217	O	|	|	|	|	|
2.49									
416.667	0.00	0.01	0.217	O	|	|	|	|	|
2.49									

Remaining water in basin = 0.22 (Ac.Ft)

```

*****HYDROGRAPH
DATA*****
      Number of intervals = 5001
      Time interval = 5.0 (Min.)
      Maximum/Peak flow rate = 18.001 (CFS)
      Total volume = 0.790 (Ac.Ft)
      Status of hydrographs being held in storage
      Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
*****
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FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/09/21

Gateway Heights
Basin Routing
100yr 3hr
Basin C ← Now Basin B

Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION *****

From study/file name: moval33post3100.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 39
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 18.168 (CFS)
Total volume = 1.500 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
++++
Process from Point/Station 102.000 to Point/Station
103.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 39
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

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--
Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)
-----

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--
Depth vs. Storage and Depth vs. Discharge data:
Basin Depth   Storage   Outflow   (S-O*dt/2)   (S+O*dt/2)
  (Ft.)       (Ac.Ft)   (CFS)     (Ac.Ft)     (Ac.Ft)
-----
0.000         0.000     0.000     0.000       0.000
1.000         0.060     0.010     0.060       0.060
2.000         0.120     0.010     0.120       0.120
3.000         0.320     0.010     0.320       0.320
4.000         0.560     0.010     0.560       0.560
5.000         0.820     24.000    0.737       0.903
6.000         1.100     24.000    1.017       1.183
-----

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--
Hydrograph Detention Basin Routing
-----

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--
Graph values: 'I'= unit inflow; 'O'=outflow at time shown
-----

```

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)					
			.0		4.5	9.08	13.63	18.17
0.083	1.06	0.00	0.004	OI	|	|	|	|
0.167	2.20	0.00	0.015	O I	|	|	|	|
0.250	2.11	0.00	0.030	O I	|	|	|	|
0.333	2.34	0.01	0.045	O I	|	|	|	|
0.417	2.79	0.01	0.063	O I	|	|	|	|
0.500	3.18	0.01	0.083	O I	|	|	|	|
0.583	3.22	0.01	0.105	O I	|	|	|	|
0.667	3.23	0.01	0.127	O I	|	|	|	|
0.750	3.56	0.01	0.151	O I	|	|	|	|
0.833	3.26	0.01	0.174	O I	|	|	|	|
0.917	3.01	0.01	0.195	O I	|	|	|	|
1.000	3.32	0.01	0.217	O I	|	|	|	|
1.083	4.01	0.01	0.242	O I	|	|	|	|
1.167	4.53	0.01	0.272	O I	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.76										
1.250	4.59	0.01	0.303	O	I	|	|	|	|	|
2.92										
1.333	4.38	0.01	0.334	O	I	|	|	|	|	|
3.06										
1.417	4.80	0.01	0.365	O	I	|	|	|	|	|
3.19										
1.500	5.62	0.01	0.401	O	|I	|	|	|	|	|
3.34										
1.583	5.48	0.01	0.439	O	|I	|	|	|	|	|
3.50										
1.667	5.48	0.01	0.477	O	|I	|	|	|	|	|
3.65										
1.750	6.47	0.01	0.518	O	|	I	|	|	|	|
3.83										
1.833	7.02	0.33	0.563	O	|	I	|	|	|	|
4.01										
1.917	6.64	3.46	0.597	|	O	|	I	|	|	|
4.14										
2.000	6.49	4.96	0.614	|	O	I	|	|	|	|
4.21										
2.083	6.69	5.75	0.622	|	|	OI	|	|	|	|
4.24										
2.167	8.05	6.53	0.631	|	|	O	I	|	|	|
4.27										
2.250	10.30	7.81	0.644	|	|	O	|	I	|	|
4.32										
2.333	9.75	8.88	0.656	|	|	O	I	|	|	|
4.37										
2.417	11.75	9.78	0.666	|	|	|	O	I	|	|
4.41										
2.500	16.12	11.78	0.688	|	|	|	O	|	I	|
4.49										
2.583	18.17	14.37	0.716	|	|	|	|	O	I	|
4.60										
2.667	16.83	15.88	0.732	|	|	|	|	O	I	|
4.66										
2.750	9.82	14.65	0.719	|	|	|	I	|	O	|
4.61										
2.833	4.55	11.05	0.680	|	I	|	O	|	|	|
4.46										
2.917	3.72	7.71	0.644	|	I	|	O	|	|	|
4.32										
3.000	2.41	5.47	0.619	|	I	|	O	|	|	|
4.23										
3.083	0.68	3.58	0.599	|I	O	|	|	|	|	|
4.15										
3.167	0.08	2.04	0.582	I	O	|	|	|	|	|
4.08										
3.250	0.01	1.08	0.572	IO	|	|	|	|	|	|
4.04										
3.333	0.00	0.56	0.566	O	|	|	|	|	|	|
4.02										
3.417	0.00	0.29	0.563	O	|	|	|	|	|	|
4.01										
3.500	0.00	0.15	0.562	O	|	|	|	|	|	|
4.01										
3.583	0.00	0.08	0.561	O	|	|	|	|	|	|
4.00										
3.667	0.00	0.04	0.560	O	|	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00									
3.750	0.00	0.02	0.560	o	|	|	|	|	|
4.00									
3.833	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
3.917	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
4.000	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
4.083	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
4.167	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
4.250	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
4.333	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
4.417	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
4.500	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
4.583	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
4.667	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
4.750	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
4.833	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
4.917	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
5.000	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
5.083	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
5.167	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
5.250	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
5.333	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
5.417	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
5.500	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
5.583	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
5.667	0.00	0.01	0.558	o	|	|	|	|	|
3.99									
5.750	0.00	0.01	0.558	o	|	|	|	|	|
3.99									
5.833	0.00	0.01	0.558	o	|	|	|	|	|
3.99									
5.917	0.00	0.01	0.558	o	|	|	|	|	|
3.99									
6.000	0.00	0.01	0.558	o	|	|	|	|	|
3.99									
6.083	0.00	0.01	0.558	o	|	|	|	|	|
3.99									
6.167	0.00	0.01	0.558	o	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.50								
416.250	0.00	0.01	0.219	0	|	|	|	|
2.50								
416.333	0.00	0.01	0.219	0	|	|	|	|
2.50								
416.417	0.00	0.01	0.219	0	|	|	|	|
2.50								
416.500	0.00	0.01	0.219	0	|	|	|	|
2.49								
416.583	0.00	0.01	0.219	0	|	|	|	|
2.49								
416.667	0.00	0.01	0.219	0	|	|	|	|
2.49								

Remaining water in basin = 0.22 (Ac.Ft)

```

*****HYDROGRAPH
DATA*****
      Number of intervals = 5001
      Time interval = 5.0 (Min.)
      Maximum/Peak flow rate = 15.879 (CFS)
      Total volume = 1.281 (Ac.Ft)
      Status of hydrographs being held in storage
      Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000
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FLOOD HYDROGRAPH ROUTING PROGRAM
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Study date: 11/09/21

Gateway Heights
Basin Routing
100yr 6hr
Basin C ← Now Basin B

Program License Serial Number 6232

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***** HYDROGRAPH INFORMATION *****

From study/file name: moval33post6100.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 75
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 16.161 (CFS)
Total volume = 1.893 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

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Process from Point/Station 102.000 to Point/Station
103.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 75
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

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Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)
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Depth vs. Storage and Depth vs. Discharge data:
  Basin Depth  Storage    Outflow    (S-O*dt/2)    (S+O*dt/2)
    (Ft.)      (Ac.Ft)    (CFS)      (Ac.Ft)      (Ac.Ft)
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Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.060	0.010	0.060	0.060
2.000	0.120	0.010	0.120	0.120
3.000	0.320	0.010	0.320	0.320
4.000	0.560	0.010	0.560	0.560
5.000	0.820	24.000	0.737	0.903
6.000	1.100	24.000	1.017	1.183

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Hydrograph Detention Basin Routing
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Graph values: 'I'= unit inflow; 'O'=outflow at time shown
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Time    Inflow  Outflow  Storage
Depth
(Hours) (CFS)   (CFS)   (Ac.Ft)
(Ft.)

```

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)						
.0					4.0		8.08	12.12	16.16
0.083	0.47	0.00	0.002	O	|	|	|	|	
0.167	1.07	0.00	0.007	O I	|	|	|	|	
0.250	1.23	0.00	0.015	O I	|	|	|	|	
0.333	1.25	0.00	0.023	O I	|	|	|	|	
0.417	1.25	0.01	0.032	O I	|	|	|	|	
0.500	1.35	0.01	0.041	O I	|	|	|	|	
0.583	1.46	0.01	0.050	O I	|	|	|	|	
0.667	1.47	0.01	0.060	O I	|	|	|	|	
0.750	1.47	0.01	0.070	O I	|	|	|	|	
0.833	1.47	0.01	0.081	O I	|	|	|	|	
0.917	1.47	0.01	0.091	O I	|	|	|	|	
1.000	1.62	0.01	0.101	O I	|	|	|	|	
1.083	1.78	0.01	0.113	O I	|	|	|	|	
1.167	1.80	0.01	0.125	O I	|	|	|	|	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.08									
3.750	3.97	2.92	0.592	|	O I|	|	|	|	|
4.12									
3.833	4.14	3.47	0.597	|	O I	|	|	|	|
4.14									
3.917	4.31	3.83	0.601	|	OI	|	|	|	|
4.16									
4.000	4.48	4.10	0.604	|	O	|	|	|	|
4.17									
4.083	4.64	4.32	0.607	|	OI	|	|	|	|
4.18									
4.167	4.96	4.55	0.609	|	|O	|	|	|	|
4.19									
4.250	5.30	4.83	0.612	|	|OI	|	|	|	|
4.20									
4.333	5.63	5.14	0.616	|	| OI	|	|	|	|
4.21									
4.417	5.97	5.46	0.619	|	| OI	|	|	|	|
4.23									
4.500	6.15	5.75	0.622	|	| OI	|	|	|	|
4.24									
4.583	6.33	5.99	0.625	|	| OI	|	|	|	|
4.25									
4.667	6.64	6.23	0.627	|	| OI	|	|	|	|
4.26									
4.750	6.98	6.51	0.630	|	| OI	|	|	|	|
4.27									
4.833	7.16	6.78	0.633	|	| OI	|	|	|	|
4.28									
4.917	7.34	7.01	0.636	|	| OI	|	|	|	|
4.29									
5.000	7.65	7.24	0.638	|	| OI|	|	|	|	|
4.30									
5.083	8.59	7.67	0.643	|	| O|I	|	|	|	|
4.32									
5.167	10.18	8.49	0.652	|	| O I	|	|	|	|
4.35									
5.250	11.55	9.64	0.664	|	| O I	|	|	|	|
4.40									
5.333	12.60	10.82	0.677	|	| O I	|	|	|	|
4.45									
5.417	13.92	12.00	0.690	|	| O| I	|	|	|	|
4.50									
5.500	16.16	13.46	0.706	|	| O I	|	|	|	|
4.56									
5.583	12.17	13.80	0.709	|	| I O	|	|	|	|
4.57									
5.667	4.78	11.23	0.682	|	|I O	|	|	|	|
4.47									
5.750	2.06	7.46	0.641	|	I O	|	|	|	|
4.31									
5.833	1.24	4.66	0.610	|	I |O	|	|	|	|
4.19									
5.917	0.88	2.93	0.592	|	I O	|	|	|	|
4.12									
6.000	0.56	1.86	0.580	|	I O	|	|	|	|
4.08									
6.083	0.25	1.16	0.572	|	I O	|	|	|	|
4.05									
6.167	0.03	0.67	0.567	|	IO	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.03									
6.250	0.00	0.35	0.564	o	|	|	|	|	|
4.01									
6.333	0.00	0.18	0.562	o	|	|	|	|	|
4.01									
6.417	0.00	0.09	0.561	o	|	|	|	|	|
4.00									
6.500	0.00	0.05	0.560	o	|	|	|	|	|
4.00									
6.583	0.00	0.03	0.560	o	|	|	|	|	|
4.00									
6.667	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
6.750	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
6.833	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
6.917	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
7.000	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
7.083	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
7.167	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
7.250	0.00	0.01	0.560	o	|	|	|	|	|
4.00									
7.333	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
7.417	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
7.500	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
7.583	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
7.667	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
7.750	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
7.833	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
7.917	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
8.000	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
8.083	0.00	0.01	0.559	o	|	|	|	|	|
4.00									
8.167	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
8.250	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
8.333	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
8.417	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
8.500	0.00	0.01	0.559	o	|	|	|	|	|
3.99									
8.583	0.00	0.01	0.558	o	|	|	|	|	|
3.99									
8.667	0.00	0.01	0.558	o	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

2.51								
416.250	0.00	0.01	0.222	o	|	|	|	|
2.51								
416.333	0.00	0.01	0.221	o	|	|	|	|
2.51								
416.417	0.00	0.01	0.221	o	|	|	|	|
2.51								
416.500	0.00	0.01	0.221	o	|	|	|	|
2.51								
416.583	0.00	0.01	0.221	o	|	|	|	|
2.51								
416.667	0.00	0.01	0.221	o	|	|	|	|
2.51								

Remaining water in basin = 0.22 (Ac.Ft)

```

*****HYDROGRAPH
DATA*****
      Number of intervals = 5001
      Time interval = 5.0 (Min.)
      Maximum/Peak flow rate = 13.801 (CFS)
      Total volume = 1.672 (Ac.Ft)
      Status of hydrographs being held in storage
      Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000
*****
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FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/09/21

Gateway Heights
Basin Routing
100 year 24hr
Basin C ← Now Basin B

Program License Serial Number 6232

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***** HYDROGRAPH INFORMATION *****

From study/file name: moval33post24100.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 291
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.176 (CFS)
Total volume = 3.181 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

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++++
Process from Point/Station 102.000 to Point/Station
103.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 291
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.060	0.010	0.060	0.060
2.000	0.120	0.010	0.120	0.120
3.000	0.320	0.010	0.320	0.320
4.000	0.560	0.010	0.560	0.560
5.000	0.820	24.000	0.737	0.903
6.000	1.100	24.000	1.017	1.183

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)					
			.0		1.5	3.09	4.63	6.18
0.083	0.11	0.00	0.000	O	|	|	|	|
0.167	0.24	0.00	0.002	OI	|	|	|	|
0.250	0.25	0.00	0.003	OI	|	|	|	|
0.333	0.31	0.00	0.005	OI	|	|	|	|
0.417	0.37	0.00	0.008	OI	|	|	|	|
0.500	0.38	0.00	0.010	OI	|	|	|	|
0.583	0.38	0.00	0.013	OI	|	|	|	|
0.667	0.38	0.00	0.015	OI	|	|	|	|
0.750	0.38	0.00	0.018	OI	|	|	|	|
0.833	0.44	0.00	0.021	O I	|	|	|	|
0.917	0.50	0.00	0.024	O I	|	|	|	|
1.000	0.50	0.00	0.027	O I	|	|	|	|
1.083	0.45	0.01	0.031	O I	|	|	|	|
1.167	0.39	0.01	0.033	O I	|	|	|	|

0.56									
1.250	0.38	0.01	0.036	OI	|	|	|	|	|
0.60									
1.333	0.38	0.01	0.039	OI	|	|	|	|	|
0.64									
1.417	0.38	0.01	0.041	OI	|	|	|	|	|
0.69									
1.500	0.38	0.01	0.044	OI	|	|	|	|	|
0.73									
1.583	0.38	0.01	0.046	OI	|	|	|	|	|
0.77									
1.667	0.38	0.01	0.049	OI	|	|	|	|	|
0.81									
1.750	0.38	0.01	0.051	OI	|	|	|	|	|
0.86									
1.833	0.44	0.01	0.054	O I	|	|	|	|	|
0.90									
1.917	0.50	0.01	0.057	O I	|	|	|	|	|
0.95									
2.000	0.50	0.01	0.061	O I	|	|	|	|	|
1.01									
2.083	0.51	0.01	0.064	O I	|	|	|	|	|
1.07									
2.167	0.51	0.01	0.067	O I	|	|	|	|	|
1.12									
2.250	0.51	0.01	0.071	O I	|	|	|	|	|
1.18									
2.333	0.51	0.01	0.074	O I	|	|	|	|	|
1.24									
2.417	0.51	0.01	0.078	O I	|	|	|	|	|
1.30									
2.500	0.51	0.01	0.081	O I	|	|	|	|	|
1.35									
2.583	0.56	0.01	0.085	O I	|	|	|	|	|
1.41									
2.667	0.62	0.01	0.089	O I	|	|	|	|	|
1.48									
2.750	0.63	0.01	0.093	O I	|	|	|	|	|
1.55									
2.833	0.63	0.01	0.097	O I	|	|	|	|	|
1.62									
2.917	0.63	0.01	0.102	O I	|	|	|	|	|
1.69									
3.000	0.63	0.01	0.106	O I	|	|	|	|	|
1.76									
3.083	0.63	0.01	0.110	O I	|	|	|	|	|
1.84									
3.167	0.63	0.01	0.114	O I	|	|	|	|	|
1.91									
3.250	0.63	0.01	0.119	O I	|	|	|	|	|
1.98									
3.333	0.63	0.01	0.123	O I	|	|	|	|	|
2.02									
3.417	0.63	0.01	0.127	O I	|	|	|	|	|
2.04									
3.500	0.63	0.01	0.132	O I	|	|	|	|	|
2.06									
3.583	0.63	0.01	0.136	O I	|	|	|	|	|
2.08									
3.667	0.63	0.01	0.140	O I	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.08									
8.750	2.26	2.13	0.583	|	|	O	|	|	|
4.09									
8.833	2.35	2.22	0.584	|	|	OI	|	|	|
4.09									
8.917	2.46	2.31	0.585	|	|	OI	|	|	|
4.10									
9.000	2.47	2.38	0.586	|	|	O	|	|	|
4.10									
9.083	2.66	2.47	0.587	|	|	OI	|	|	|
4.10									
9.167	2.87	2.61	0.588	|	|	OI	|	|	|
4.11									
9.250	2.89	2.74	0.590	|	|	O	|	|	|
4.11									
9.333	2.99	2.84	0.591	|	|	OI	|	|	|
4.12									
9.417	3.10	2.94	0.592	|	|	OI	|	|	|
4.12									
9.500	3.11	3.02	0.593	|	|	OI	|	|	|
4.13									
9.583	3.21	3.09	0.593	|	|	O	|	|	|
4.13									
9.667	3.32	3.17	0.594	|	|	OI	|	|	|
4.13									
9.750	3.33	3.25	0.595	|	|	OI	|	|	|
4.13									
9.833	3.43	3.31	0.596	|	|	O	|	|	|
4.14									
9.917	3.53	3.39	0.597	|	|	OI	|	|	|
4.14									
10.000	3.55	3.46	0.597	|	|	OI	|	|	|
4.14									
10.083	2.92	3.35	0.596	|	|	I	O	|	|
4.14									
10.167	2.22	2.98	0.592	|	|	I	O	|	|
4.12									
10.250	2.15	2.60	0.588	|	|	I	O	|	|
4.11									
10.333	2.14	2.38	0.586	|	|	IO	|	|	|
4.10									
10.417	2.15	2.26	0.584	|	|	O	|	|	|
4.09									
10.500	2.15	2.21	0.584	|	|	O	|	|	|
4.09									
10.583	2.61	2.29	0.585	|	|	O	I	|	|
4.10									
10.667	3.11	2.57	0.588	|	|	O	I	|	|
4.11									
10.750	3.17	2.85	0.591	|	|	O	I	|	|
4.12									
10.833	3.19	3.01	0.592	|	|	OI	|	|	|
4.12									
10.917	3.19	3.10	0.593	|	|	O	|	|	|
4.13									
11.000	3.20	3.14	0.594	|	|	O	|	|	|
4.13									
11.083	3.11	3.15	0.594	|	|	O	|	|	|
4.13									
11.167	3.01	3.11	0.594	|	|	IO	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.09									
16.250	0.53	1.42	0.575	| I O |	|	|	|	|	|
4.06									
16.333	0.51	0.98	0.571	| I O |	|	|	|	|	|
4.04									
16.417	0.51	0.75	0.568	| IO |	|	|	|	|	|
4.03									
16.500	0.51	0.63	0.567	| IO |	|	|	|	|	|
4.03									
16.583	0.45	0.56	0.566	| O |	|	|	|	|	|
4.02									
16.667	0.39	0.49	0.565	| O |	|	|	|	|	|
4.02									
16.750	0.38	0.44	0.565	| IO |	|	|	|	|	|
4.02									
16.833	0.38	0.41	0.564	| IO |	|	|	|	|	|
4.02									
16.917	0.38	0.40	0.564	| IO |	|	|	|	|	|
4.02									
17.000	0.38	0.39	0.564	| IO |	|	|	|	|	|
4.02									
17.083	0.49	0.41	0.564	| O |	|	|	|	|	|
4.02									
17.167	0.62	0.48	0.565	| OI |	|	|	|	|	|
4.02									
17.250	0.63	0.55	0.566	| OI |	|	|	|	|	|
4.02									
17.333	0.63	0.59	0.566	| O |	|	|	|	|	|
4.02									
17.417	0.63	0.61	0.567	| O |	|	|	|	|	|
4.03									
17.500	0.63	0.62	0.567	| O |	|	|	|	|	|
4.03									
17.583	0.63	0.63	0.567	| O |	|	|	|	|	|
4.03									
17.667	0.63	0.63	0.567	| O |	|	|	|	|	|
4.03									
17.750	0.63	0.63	0.567	| O |	|	|	|	|	|
4.03									
17.833	0.58	0.62	0.567	| IO |	|	|	|	|	|
4.03									
17.917	0.51	0.58	0.566	| IO |	|	|	|	|	|
4.02									
18.000	0.51	0.55	0.566	| O |	|	|	|	|	|
4.02									
18.083	0.51	0.53	0.566	| O |	|	|	|	|	|
4.02									
18.167	0.51	0.52	0.565	| O |	|	|	|	|	|
4.02									
18.250	0.51	0.51	0.565	| O |	|	|	|	|	|
4.02									
18.333	0.51	0.51	0.565	| O |	|	|	|	|	|
4.02									
18.417	0.51	0.51	0.565	| O |	|	|	|	|	|
4.02									
18.500	0.51	0.51	0.565	| O |	|	|	|	|	|
4.02									
18.583	0.45	0.49	0.565	| O |	|	|	|	|	|
4.02									
18.667	0.39	0.46	0.565	| O |	|	|	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.02									
18.750	0.38	0.42	0.564	|IO	|	|	|	|	|
4.02									
18.833	0.32	0.39	0.564	|IO	|	|	|	|	|
4.02									
18.917	0.26	0.34	0.564	|O	|	|	|	|	|
4.01									
19.000	0.25	0.30	0.563	|O	|	|	|	|	|
4.01									
19.083	0.31	0.29	0.563	|O	|	|	|	|	|
4.01									
19.167	0.37	0.32	0.563	|O	|	|	|	|	|
4.01									
19.250	0.38	0.34	0.564	|O	|	|	|	|	|
4.01									
19.333	0.44	0.37	0.564	|OI	|	|	|	|	|
4.02									
19.417	0.50	0.42	0.564	|O	|	|	|	|	|
4.02									
19.500	0.50	0.46	0.565	|O	|	|	|	|	|
4.02									
19.583	0.45	0.47	0.565	|O	|	|	|	|	|
4.02									
19.667	0.39	0.44	0.565	|O	|	|	|	|	|
4.02									
19.750	0.38	0.41	0.564	|IO	|	|	|	|	|
4.02									
19.833	0.32	0.38	0.564	|O	|	|	|	|	|
4.02									
19.917	0.26	0.34	0.564	|O	|	|	|	|	|
4.01									
20.000	0.25	0.30	0.563	|O	|	|	|	|	|
4.01									
20.083	0.31	0.29	0.563	|O	|	|	|	|	|
4.01									
20.167	0.37	0.31	0.563	|O	|	|	|	|	|
4.01									
20.250	0.38	0.34	0.564	|O	|	|	|	|	|
4.01									
20.333	0.38	0.36	0.564	|O	|	|	|	|	|
4.01									
20.417	0.38	0.37	0.564	|O	|	|	|	|	|
4.01									
20.500	0.38	0.37	0.564	|O	|	|	|	|	|
4.02									
20.583	0.38	0.38	0.564	|O	|	|	|	|	|
4.02									
20.667	0.38	0.38	0.564	|O	|	|	|	|	|
4.02									
20.750	0.38	0.38	0.564	|O	|	|	|	|	|
4.02									
20.833	0.32	0.37	0.564	|O	|	|	|	|	|
4.01									
20.917	0.26	0.33	0.563	|O	|	|	|	|	|
4.01									
21.000	0.25	0.30	0.563	|O	|	|	|	|	|
4.01									
21.083	0.31	0.29	0.563	|O	|	|	|	|	|
4.01									
21.167	0.37	0.31	0.563	|O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

2.58									
416.250	0.00	0.01	0.236	0	|	|	|	|	|
2.58									
416.333	0.00	0.01	0.236	0	|	|	|	|	|
2.58									
416.417	0.00	0.01	0.236	0	|	|	|	|	|
2.58									
416.500	0.00	0.01	0.236	0	|	|	|	|	|
2.58									
416.583	0.00	0.01	0.236	0	|	|	|	|	|
2.58									
416.667	0.00	0.01	0.236	0	|	|	|	|	|
2.58									

Remaining water in basin = 0.24 (Ac.Ft)

```

*****HYDROGRAPH
DATA*****
      Number of intervals = 5001
      Time interval = 5.0 (Min.)
      Maximum/Peak flow rate = 6.120 (CFS)
      Total volume = 2.946 (Ac.Ft)
      Status of hydrographs being held in storage
      Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000
*****
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Appendix B

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Channel Report

Preliminary Design - Offsite Flows - Point 304

Circular

Diameter (ft) = 3.00

Invert Elev (ft) = 1.00

Slope (%) = 9.20

N-Value = 0.012

Calculations

Compute by: Known Q

Known Q (cfs) = 90.60

Highlighted

Depth (ft) = 1.35

Q (cfs) = 90.60

Area (sqft) = 3.10

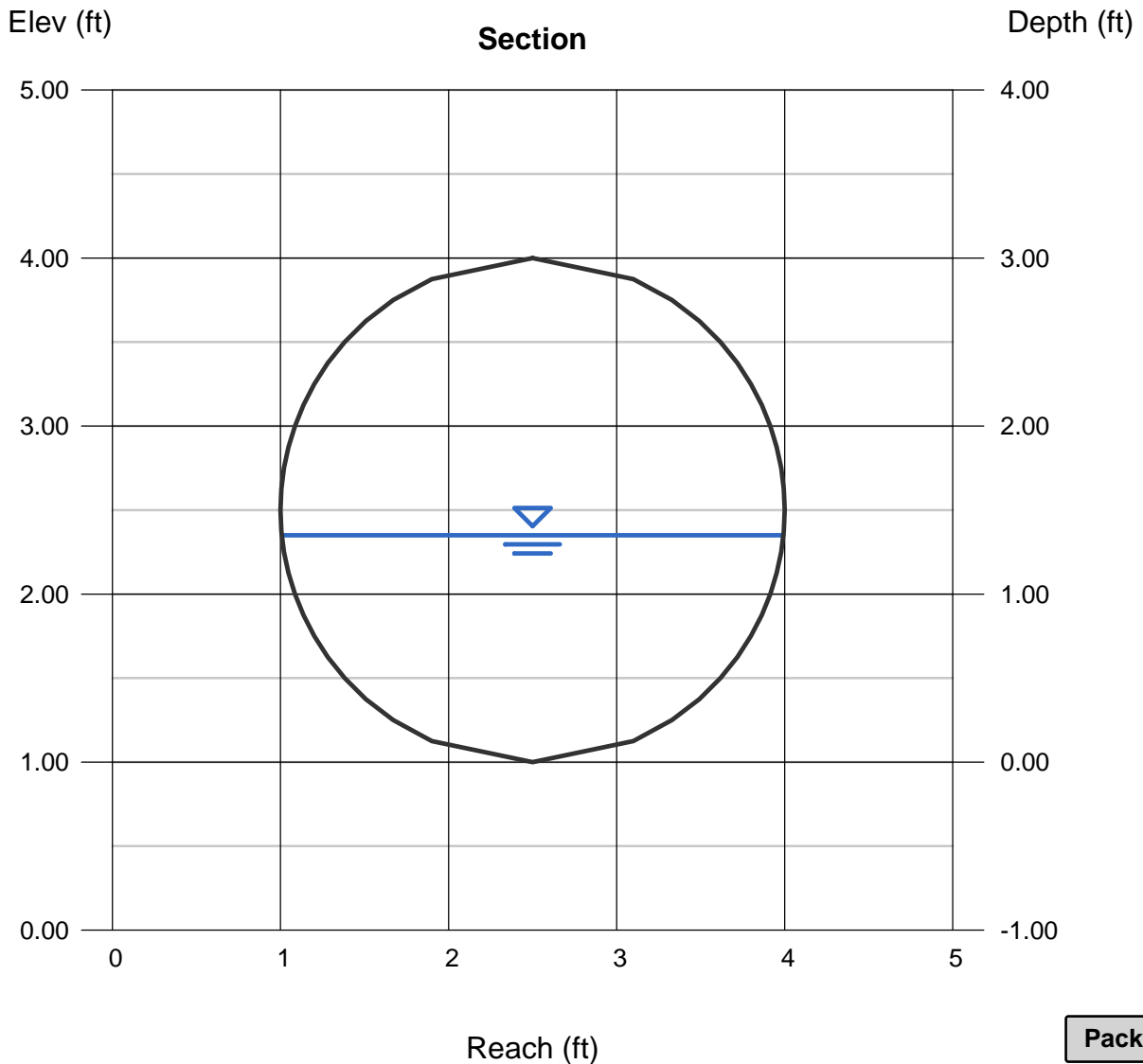
Velocity (ft/s) = 29.18

Wetted Perim (ft) = 4.42

Crit Depth, Yc (ft) = 2.85

Top Width (ft) = 2.99

EGL (ft) = 14.59



Channel Report

Preliminary Design - Offsite Flows - Point 403

Circular

Diameter (ft) = 2.00

Invert Elev (ft) = 1.00

Slope (%) = 2.00

N-Value = 0.012

Calculations

Compute by: Known Q

Known Q (cfs) = 26.70

Highlighted

Depth (ft) = 1.32

Q (cfs) = 26.70

Area (sqft) = 2.21

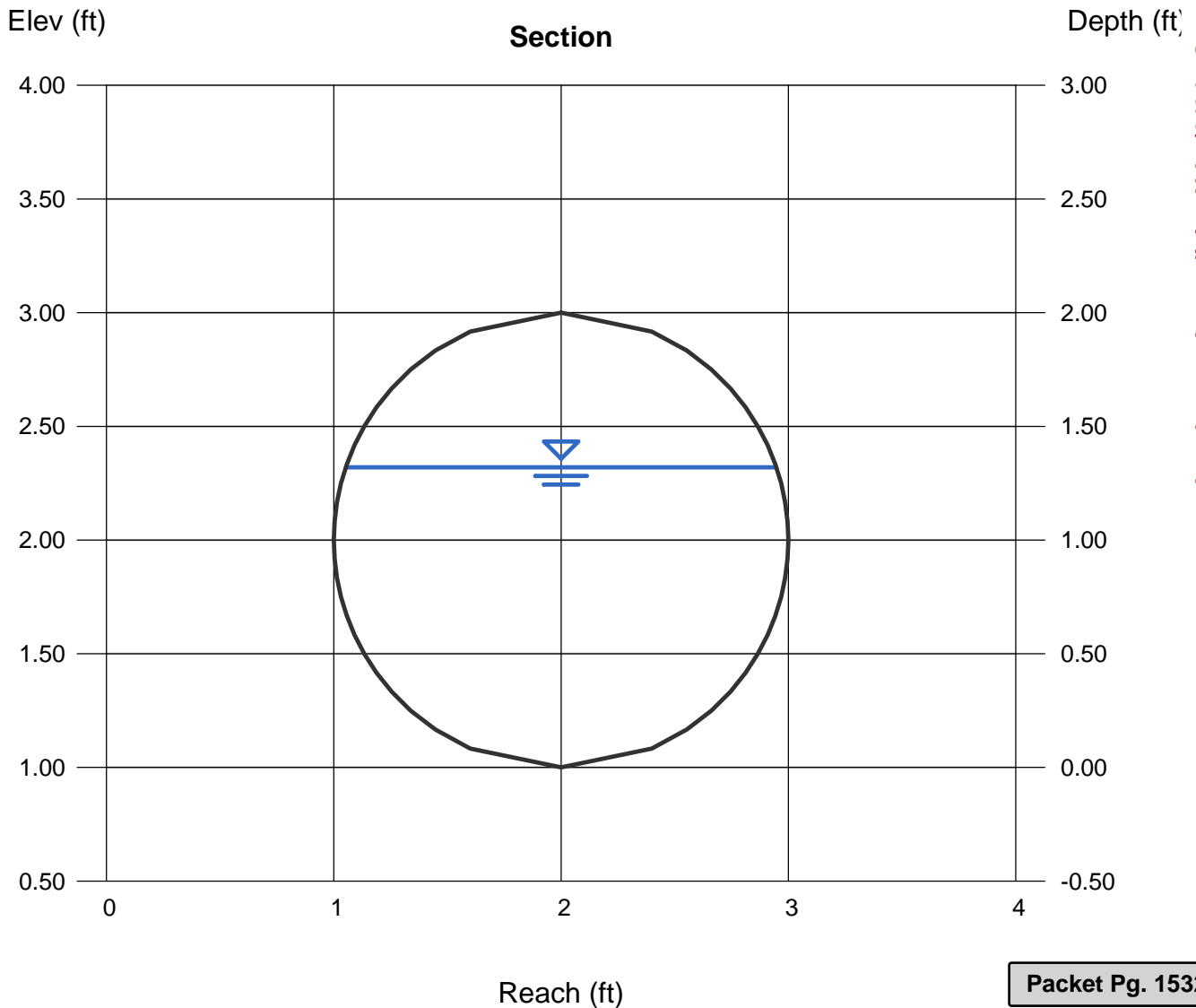
Velocity (ft/s) = 12.10

Wetted Perim (ft) = 3.80

Crit Depth, Yc (ft) = 1.81

Top Width (ft) = 1.89

EGL (ft) = 3.60



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Channel Report

Preliminary Design - Offsite Flows - Point 403 - Alt Min slope

Circular

Diameter (ft) = 3.00

Invert Elev (ft) = 1.00

Slope (%) = 0.30

N-Value = 0.012

Calculations

Compute by: Known Q

Known Q (cfs) = 26.70

Highlighted

Depth (ft) = 1.81

Q (cfs) = 26.70

Area (sqft) = 4.46

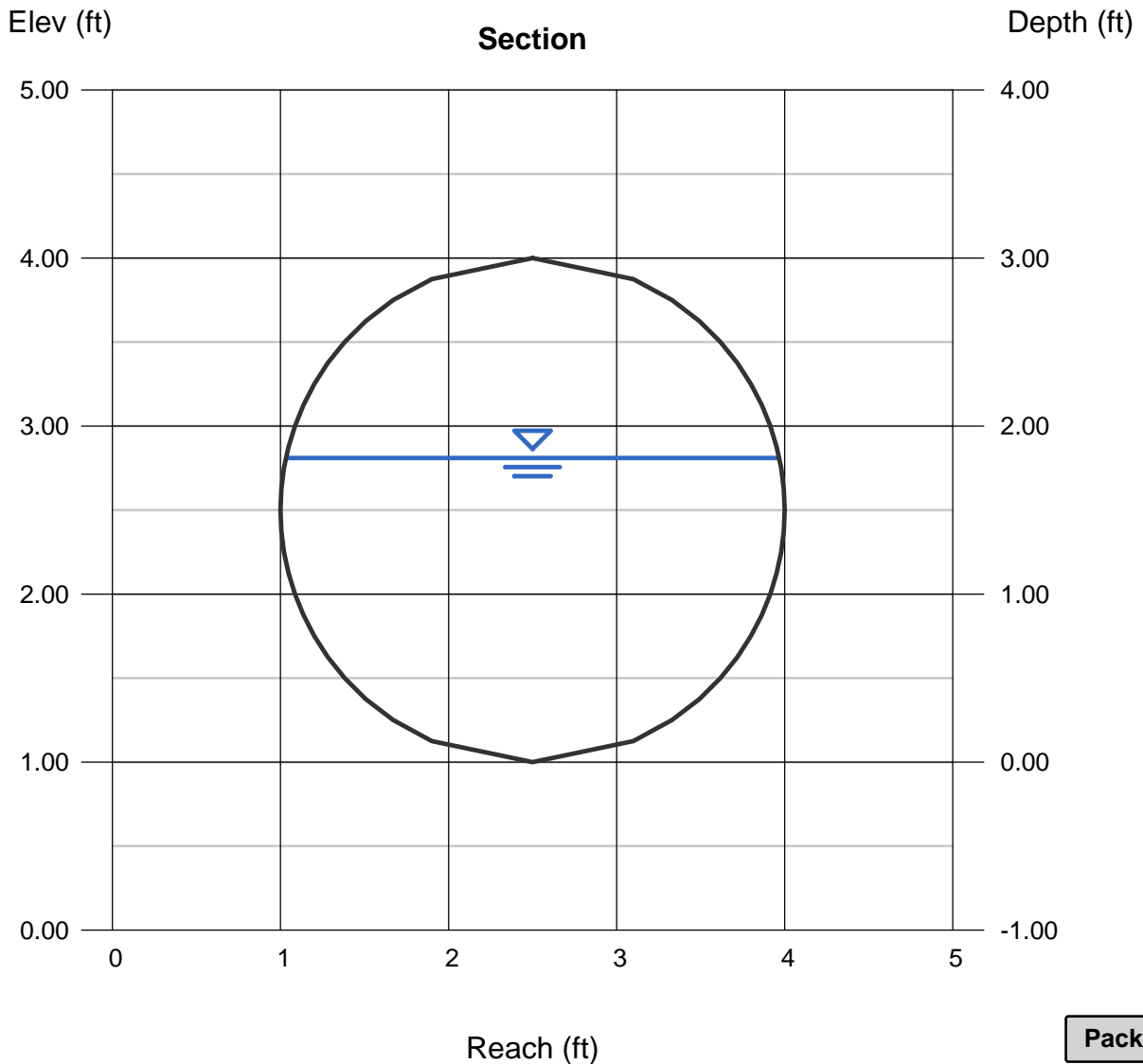
Velocity (ft/s) = 5.98

Wetted Perim (ft) = 5.34

Crit Depth, Yc (ft) = 1.67

Top Width (ft) = 2.93

EGL (ft) = 2.37



Channel Report

Preliminary Design - Offsite Flows - Point 502

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 1.00

Slope (%) = 1.00

N-Value = 0.012

Calculations

Compute by: Known Q

Known Q (cfs) = 7.80

Highlighted

Depth (ft) = 0.91

Q (cfs) = 7.800

Area (sqft) = 1.13

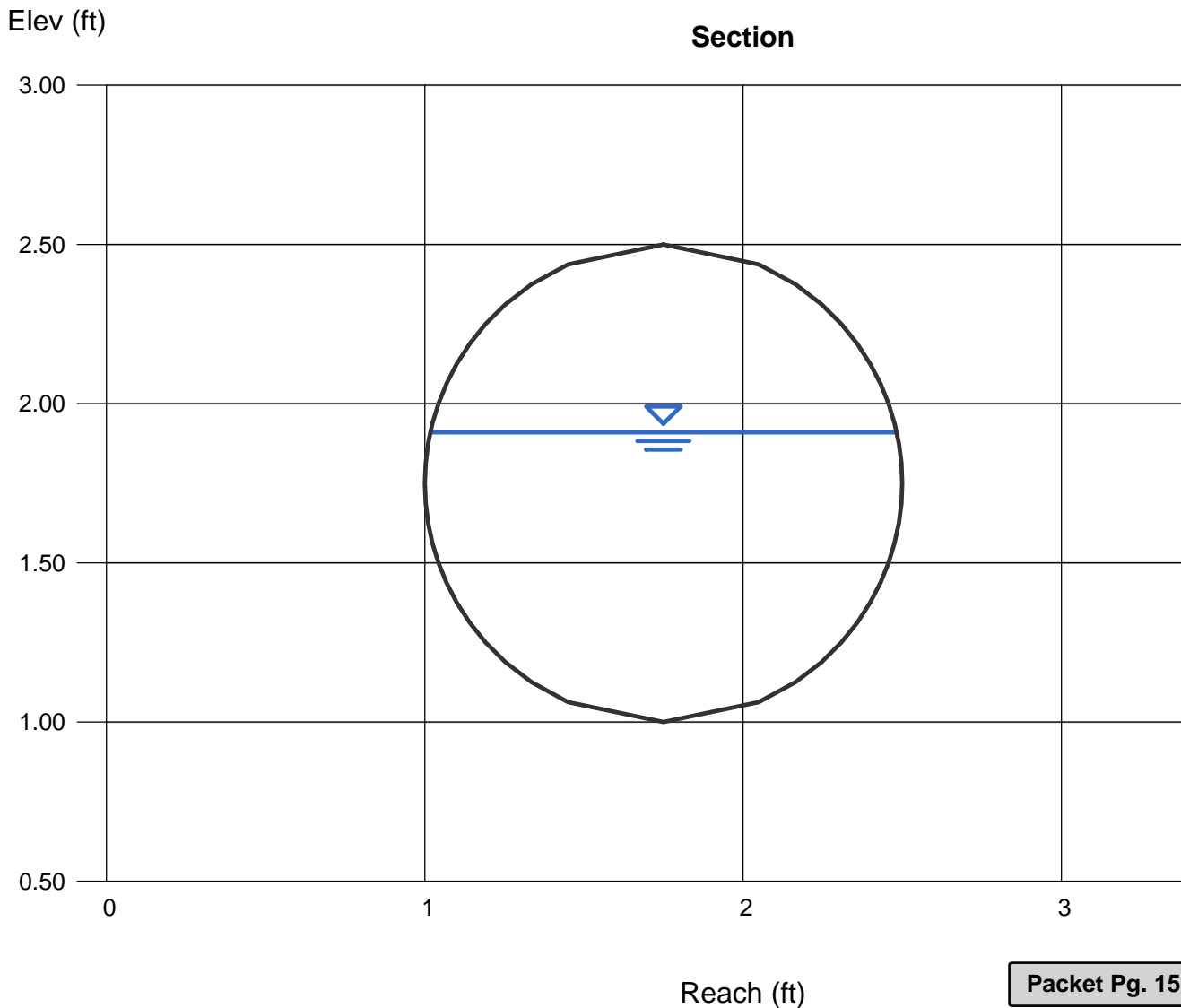
Velocity (ft/s) = 6.93

Wetted Perim (ft) = 2.68

Crit Depth, Yc (ft) = 1.08

Top Width (ft) = 1.46

EGL (ft) = 1.66



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Channel Report

Prelim Check of Offsite Storm Drain PT304+PT403

Circular

Diameter (ft) = 3.00

Invert Elev (ft) = 1.00

Slope (%) = 8.00

N-Value = 0.012

Calculations

Compute by: Known Q

Known Q (cfs) = 117.00

Highlighted

Depth (ft) = 1.63

Q (cfs) = 117.00

Area (sqft) = 3.93

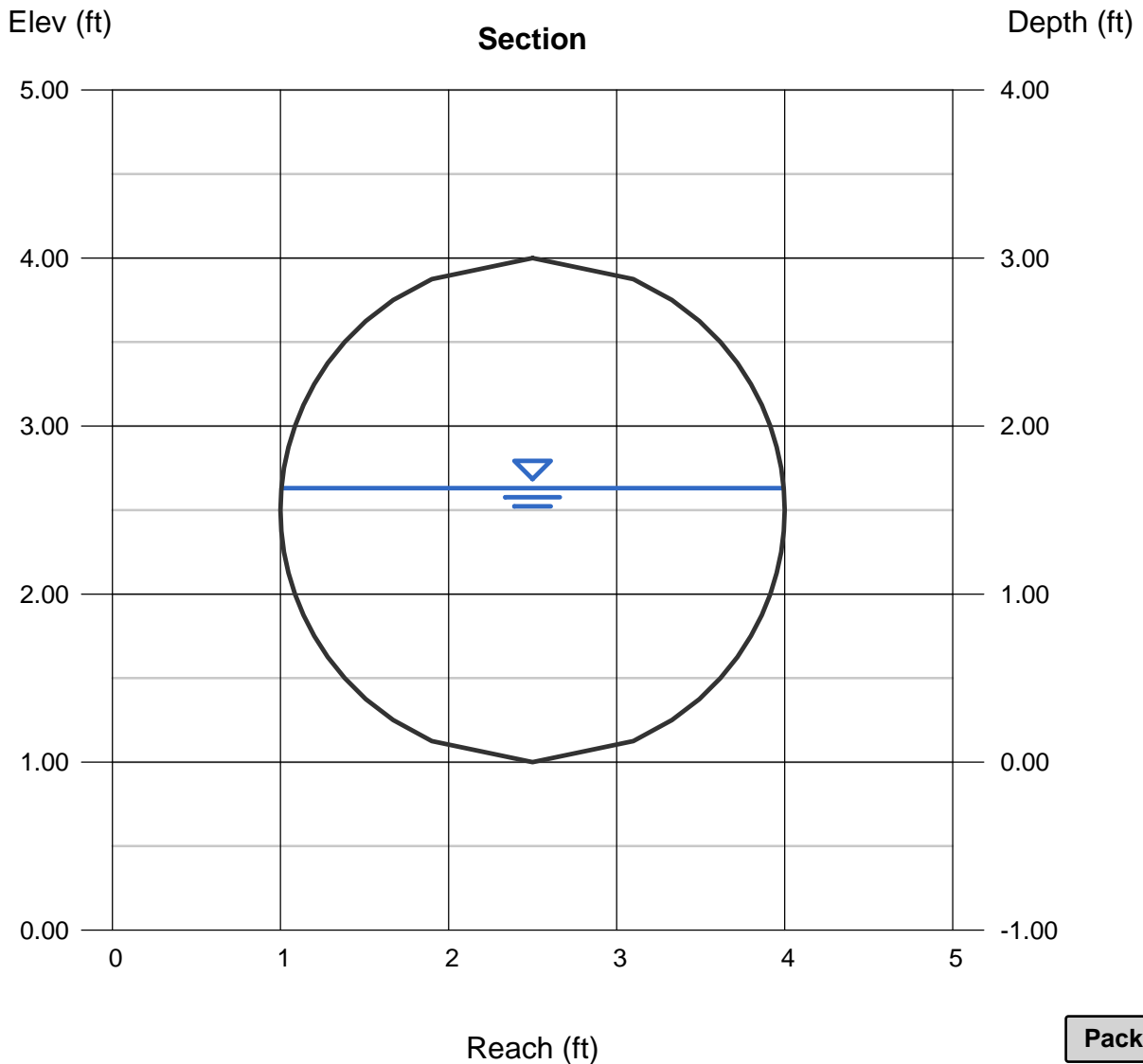
Velocity (ft/s) = 29.74

Wetted Perim (ft) = 4.98

Crit Depth, Yc (ft) = 2.95

Top Width (ft) = 2.99

EGL (ft) = 15.38



Channel Report

Gateway Heights Street Capacity - Min slope 2.08%

User-defined

Invert Elev (ft) = 0.50
Slope (%) = 2.08
N-Value = Composite

Highlighted

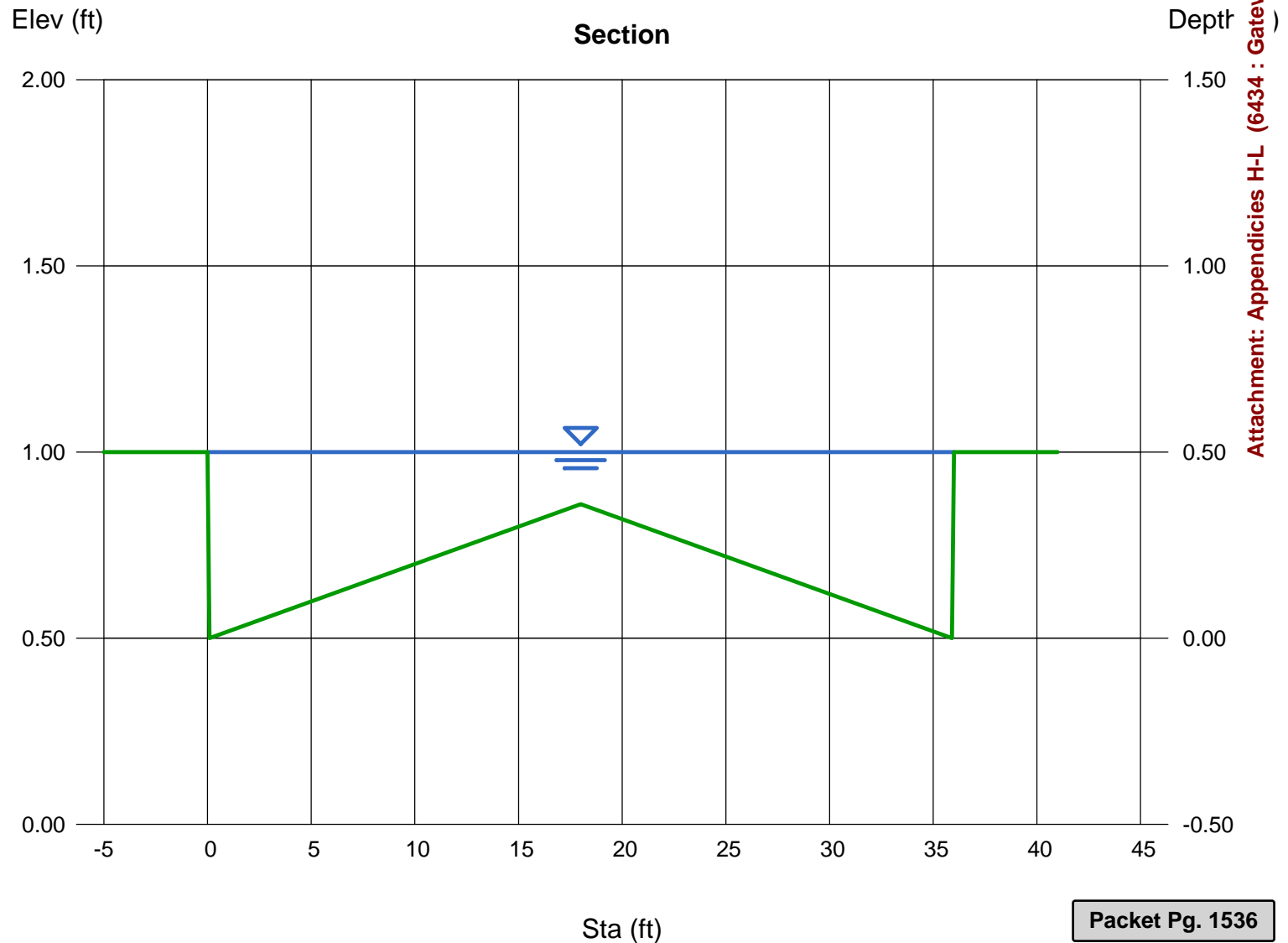
Depth (ft) = 0.50
Q (cfs) = 75.82
Area (sqft) = 11.51
Velocity (ft/s) = 6.59
Wetted Perim (ft) = 36.83
Crit Depth, Yc (ft) = 0.50
Top Width (ft) = 36.00
EGL (ft) = 1.18

Calculations

Compute by: Q vs Depth
No. Increments = 10

(Sta, El, n)-(Sta, El, n)...

(0.00, 1.00)-(0.10, 0.50, 0.015)-(18.00, 0.86, 0.015)-(35.90, 0.50, 0.015)-(36.00, 1.00, 0.015)



Culvert Report

Line B Prelim Design

Invert Elev Dn (ft)	=	1552.00
Pipe Length (ft)	=	268.00
Slope (%)	=	7.54
Invert Elev Up (ft)	=	1572.20
Rise (in)	=	72.0
Shape	=	Box
Span (in)	=	36.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls, Top Edge Bevel
Culvert Entrance	=	45D wingwall flare d=0.043D
Coeff. K,M,c,Y,k	=	0.51, 0.667, 0.0309, 0.8, 0.2

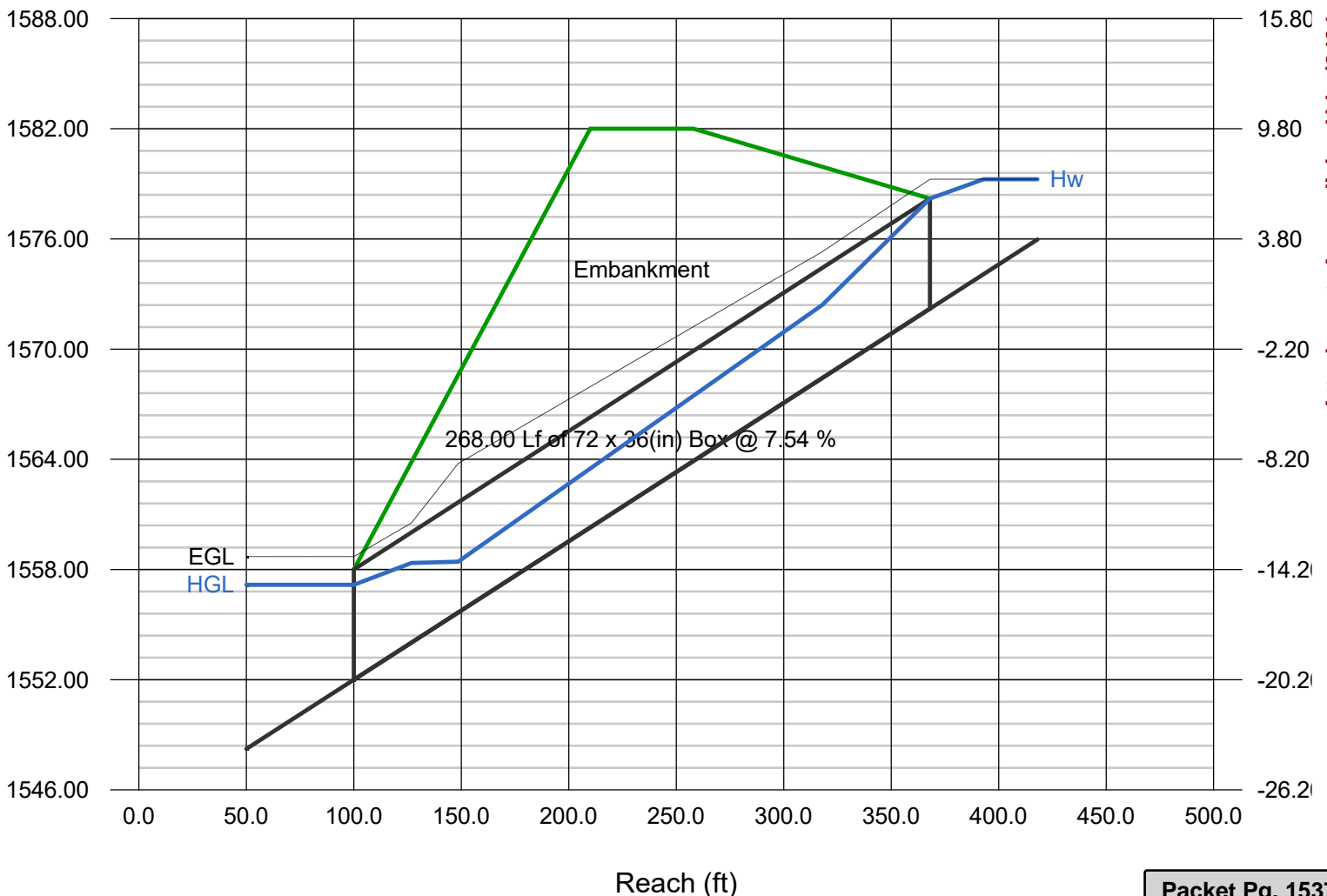
Calculations	
Qmin (cfs)	= 308.00
Qmax (cfs)	= 308.00
Tailwater Elev (ft)	= (dc+D)/2

Highlighted	
Qtotal (cfs)	= 308.00
Qpipe (cfs)	= 308.00
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 9.93
Veloc Up (ft/s)	= 11.84
HGL Dn (ft)	= 1557.17
HGL Up (ft)	= 1576.54
Hw Elev (ft)	= 1579.25
Hw/D (ft)	= 1.17
Flow Regime	= Inlet Control

Embankment	
Top Elevation (ft)	= 1582.00
Top Width (ft)	= 48.00
Crest Width (ft)	= 100.00
Elev (ft)	

Profile

Hw Depth (ft)



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Appendix C

Santa Ana Watershed - BMP Design Volume, V_{BMP}
 (Rev. 10-2011)

Legend: Required Entries
 Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name UEG Date 11/4/2021
 Designed by CSM Case No
 Company Project Number/Name Gateway Heights

BMP Identification

BMP NAME / ID Overall Site - Contirbutory to the 3 shared basins
Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, D_{85} = 0.63 inches
 from the Isohyetal Map in Handbook Appendix E

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
A&B	662547	Mixed Surface Types	0.65	0.45	297601.7			
	662547				297601.7	0.63	15624.1	80150

Notes:

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Basin Stage-Storage-Outfall Chart					
	Depth		Vol [acft]	Vol Total [acft]	Q out [cfs]*
	[ft]	Area [sf]			
Basin B	0	8356			
	1	8356	0.058	0.058	0.7
	2	8356	0.058	0.115	0.7
	3	9566	0.206	0.321	0.7
	4	10831	0.234	0.555	0.7
	5	12153	0.264	0.819	24.0
	6	13532	0.265	1.084	24.0

0.5 cfs limited by 6" underdrain or Orifice to match 2yr 24hr

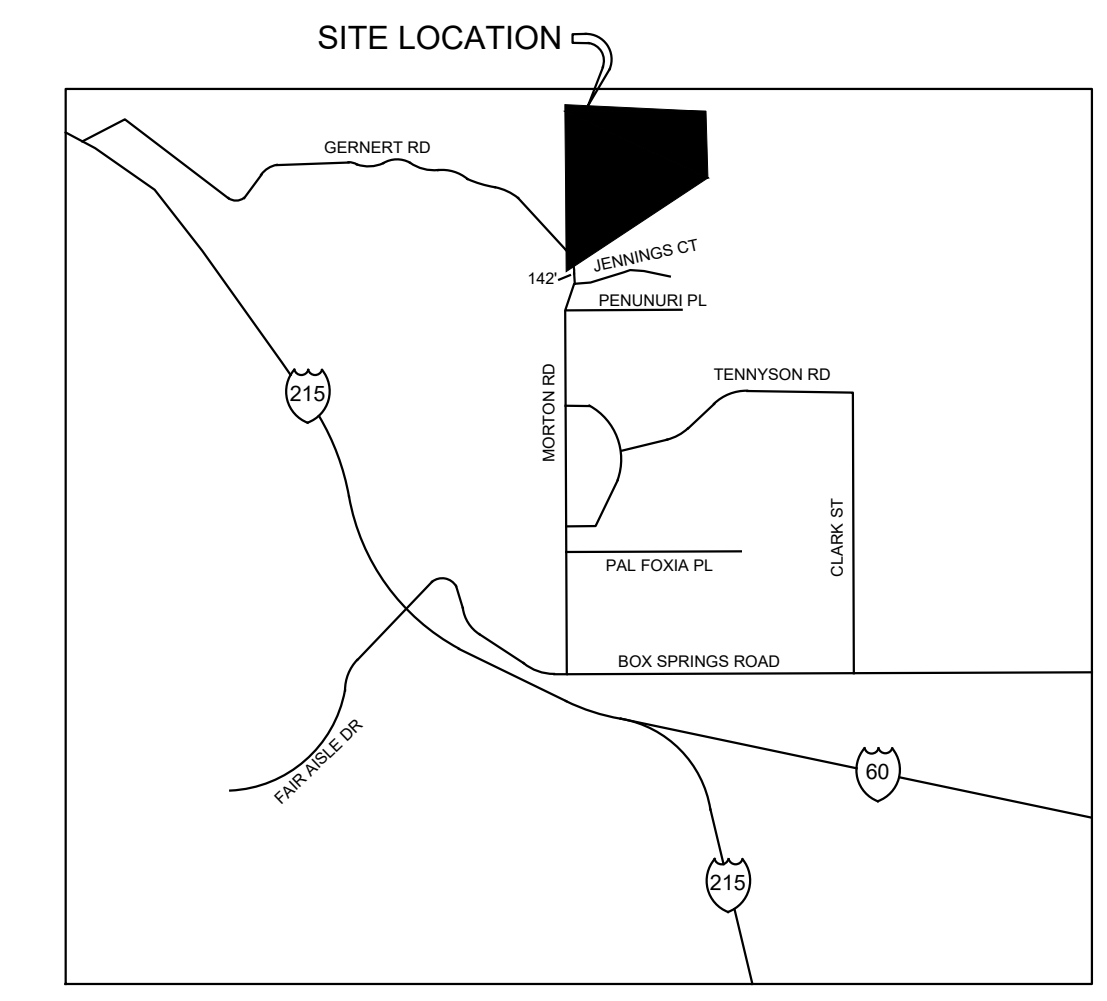
Basin Stage-Storage-Outfall Chart					
	Depth		Vol [acft]	Vol Total [acft]	Q out [cfs]*
	[ft]	Area [sf]			
Basin A	0	2355			
	1	2355	0.016	0.016	0.5
	2	2355	0.016	0.032	0.5
	3	3229	0.064	0.097	0.5
	4	4223	0.086	0.182	0.5
	5	5318	0.110	0.292	24.0
	6	6422	0.111	0.402	24.0

0.7 cfs limited by 6" underdrain or Orifice to match 2yr 24hr

Appendix D

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.
PRELIMINARY GRADING PLAN (PEN21-0066)

BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN
 UNITED ENGINEERING GROUP CA., INC NOVEMBER 2022



VICINITY MAP
N.T.S.

GENERAL NOTES:

1. APN: 256-150-001
2. TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL-1FT.
3. THE LAND DOES NOT LIE WITHIN AN ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP, PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
4. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
5. THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
6. THIS AREA IS NOT WITHIN FAULT ZONE.
7. BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
8. PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
9. HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS AND FUEL MODIFICATION AREAS.
10. PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
11. ALL GRADING WORK SHOWN ON THIS PLAN SHALL BE DONE IN COMPLIANCE WITH CHAPTER 33 OF THE UNIFORM BUILDING CODE AND LOCAL ORDINANCE.
12. PRIOR TO ANY GRADING WORK, A GRADING PERMIT SHALL BE OBTAINED FROM THE CITY OF MORENO VALLEY BUILDING DEPARTMENT.
13. ALL GRADING SHALL CONFORM TO THE RECOMMENDATIONS AND REQUIREMENTS OF THE PRELIMINARY SOILS REPORT DATED SEPTEMBER 22, 2018 BY LGC GEO-ENVIRONMENTAL, INC.
14. ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
15. PADS 4, 5, AND 6 DEVIATE FROM THE STANDARD GRADING DETAILS TO DRAIN TOWARDS THE PARK, AWAY FROM THE STREET. AT FINAL DESIGN STORM DRAIN MAY BE REQUIRED TO COLLECT AND ROUTE FLOWS TO THE PARK AREA.
16. PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
17. REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORNINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.
18. OFFSITE AREA OUTSIDE OF PROJECT TOPOGRAPHY LIMITS. AT FINAL DESIGN AND IN CONJUNCTION WITH LINE B DESIGN, ADDITIONAL DESIGN SURVEY WILL BE REQUIRED.
19. PROJECT STREET LIGHT DESIGN TO COMPLY WITH CITY STANDARDS. STREET LIGHT DESIGN PLANS TO BE PREPARED WITH FINAL DESIGN DRAWINGS.

LEGEND

FF	FINISHED FLOOR	FS	FINISHED SURFACE
FL	FLOW LINE	HW	HIGH WATER
R/W	RIGHT-OF-WAY	HW	INVERT
BSL	BUILDING SETBACK LINE	TC	TOP OF CURB
EP	EDGE OF PAVEMENT	HP	HIGH POINT

— S — S —	PROPOSED SEWER LINE
— W — W —	PROPOSED WATER LINE
— S — S —	EXISTING SEWER LINE
— W — W —	EXISTING WATER LINE
---	DEVELOPMENT LIMITS
---	PROJECT BOUNDARY
---	CENTERLINE
---	EXISTING DIRT ROAD
— P — P —	POWER POLE
---	OVERHEAD POWER LINE
---	FUEL MODIFICATION ZONE
---	2:1 SLOPE (UNLESS OTHERWISE NOTED)
---	DECORATIVE WALL

ESTIMATED EARTHWORK QUANTITIES (RAW)

CUT: 90,148 CU. YDS. FILL: 56,011 CU. YDS.

NOTE: THE ABOVE QUANTITIES DO NOT REFLECT ANY SWELLING, SUBSIDENCE, OVER EXCAVATION, OR ANY SPECIAL CONDITIONS THAT MAY BE SPECIFIED IN THE PRELIMINARY SOILS REPORT AND ARE FOR REFERENCE AND FEE PURPOSES ONLY. SINCE THE ENGINEER CANNOT CONTROL THE EXACT METHOD OR MEANS USED BY THE CONTRACTOR DURING GRADING OPERATIONS, NOR CAN THE ENGINEER GUARANTEE THE EXACT SOIL CONDITION OVER THE ENTIRE SITE, THE ENGINEER ASSUME NO RESPONSIBILITY FOR THE FINAL EARTHWORK QUANTITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THEIR OWN EARTHWORK QUANTITIES FOR BIDDING, CONTRACT, AND CONSTRUCTION PURPOSES.

DEVELOPER:

JASON ACKERMAN
 3200 GUASTI ROAD #100
 ONTARIO, CA 91761
 (909) 456-1460 OFFICE
 (909) 292-6877 MOBILE
 jason.ackerman@ackermanlawpc.com

OWNER/APPLICANT:

SHIZAO ZHENG
 1378 WEST ZHONGSHAN ROAD
 NINGBO, CHINA 315-016
 (626) 666-1470

ENGINEER/PLAN PREPARER

UNITED ENGINEERS GROUP CA, INC
 8885 HAVEN AVENUE, SUITE 195
 RANCHO CUCAMONGA, CA 91730
 (909) 466-9240 X203 OFFICE
 (909) 292-6877 MOBILE
 bcooper@unitedeng.com

GEOTECHNICAL ENGINEER

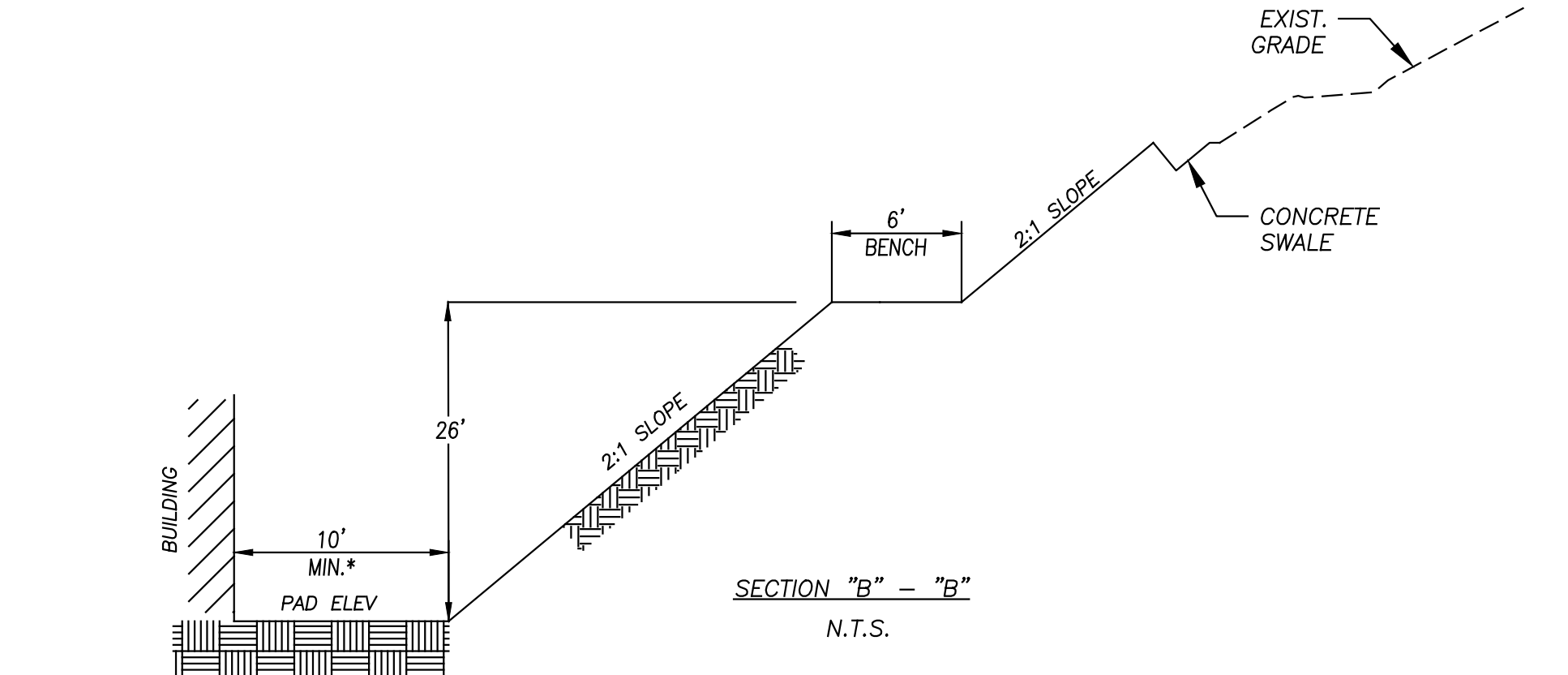
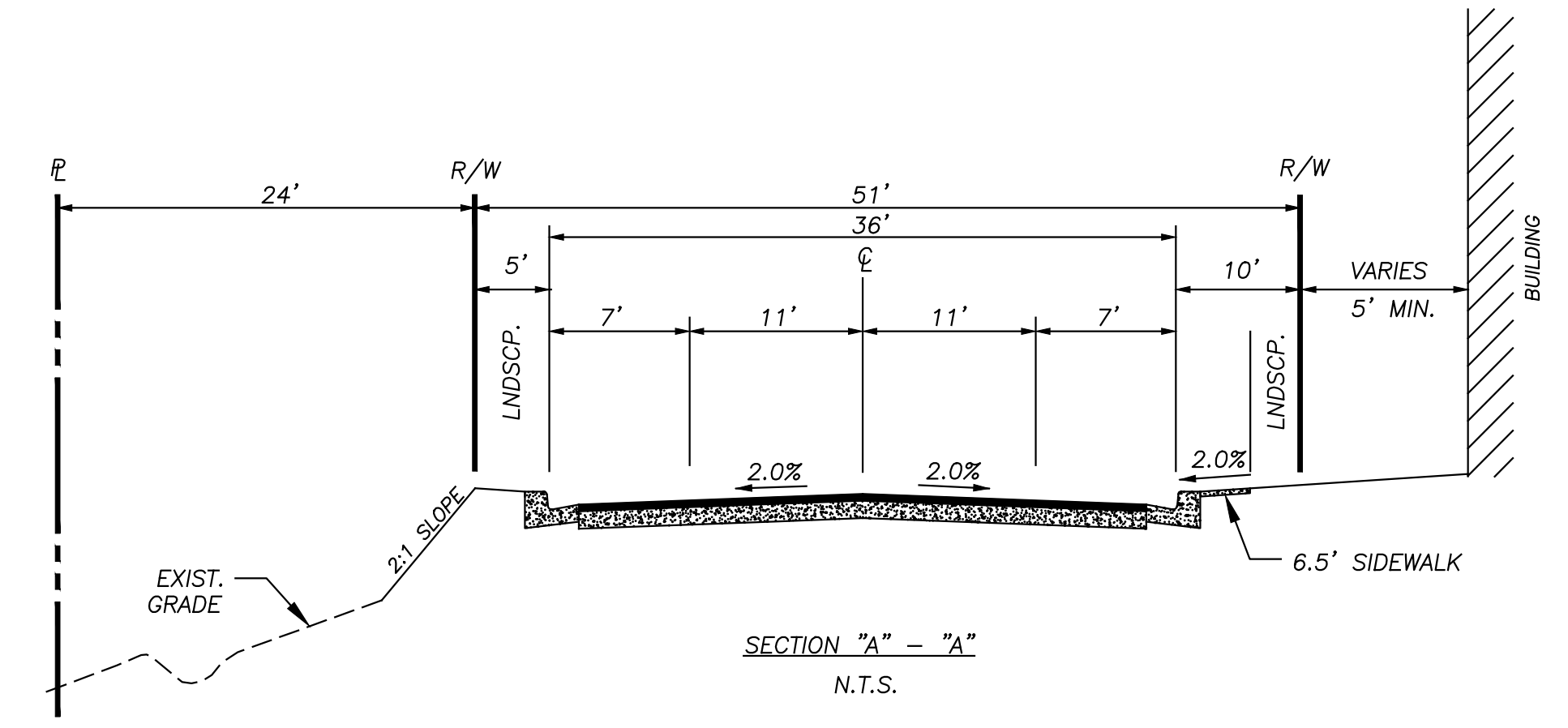
LGC GEO-ENVIRONMENTAL, INC.
 27570 COMMERCE CENTER DRIVE
 SUITE 128
 TEMECULA, CA 92590
 (951) 297-2450

UTILITY PURVEYORS:

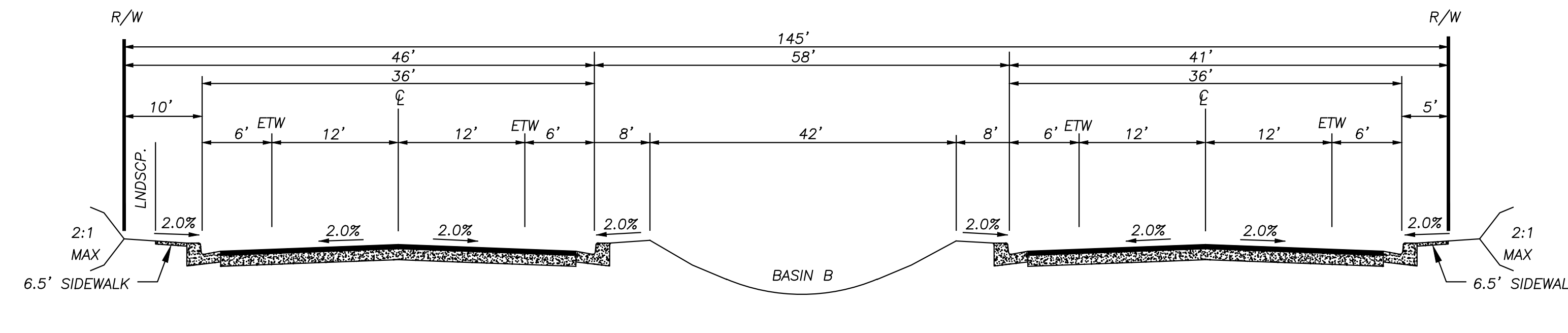
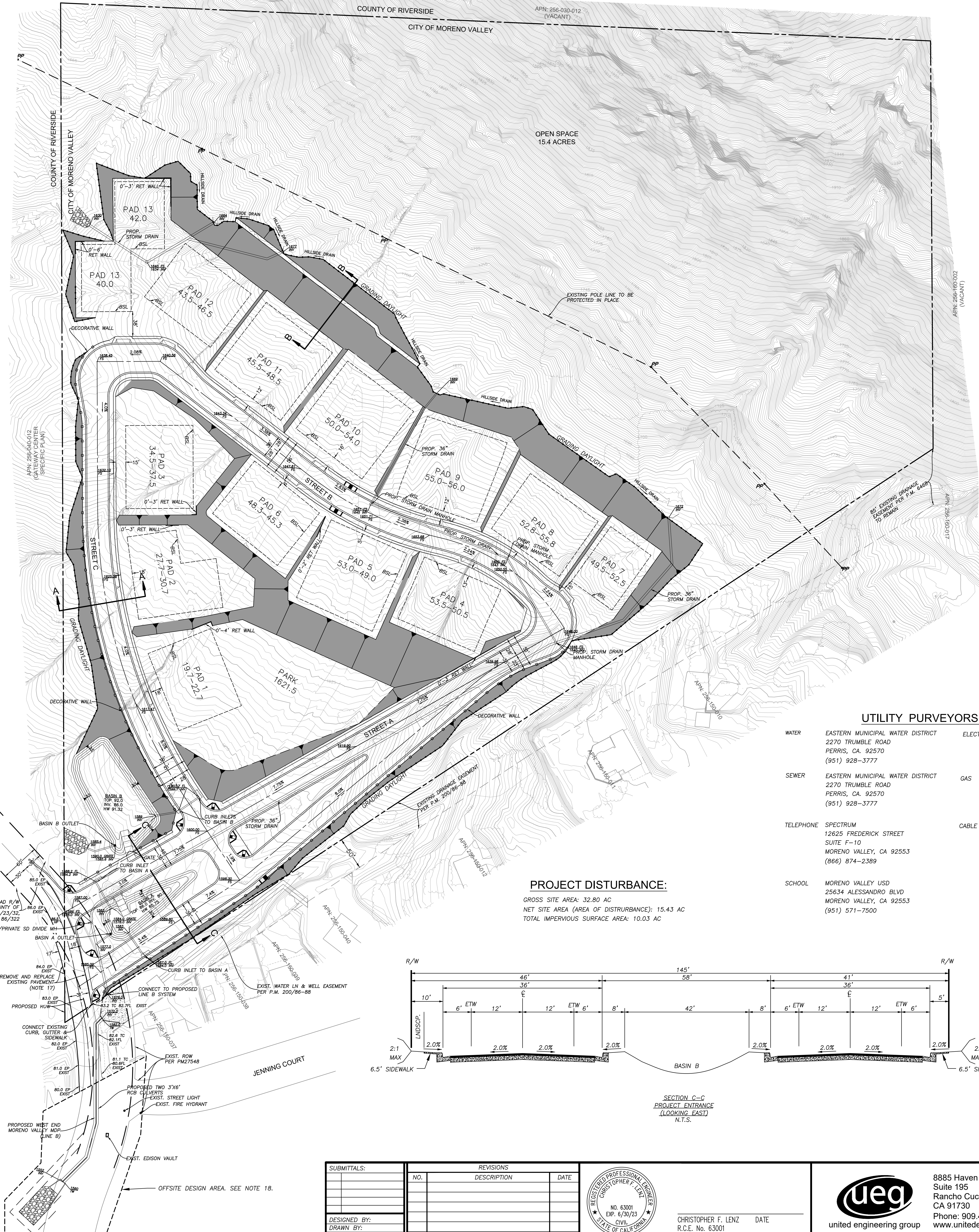
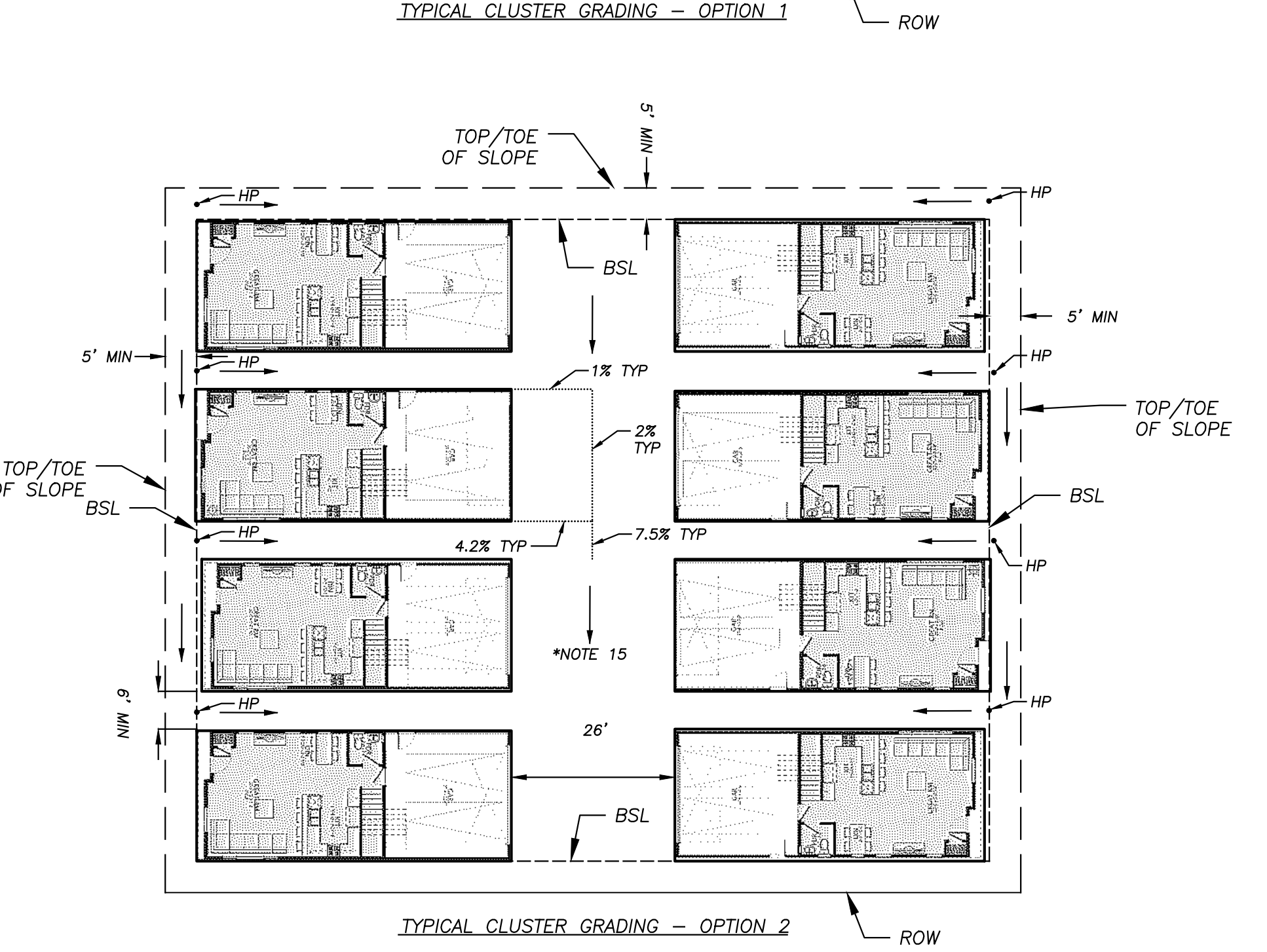
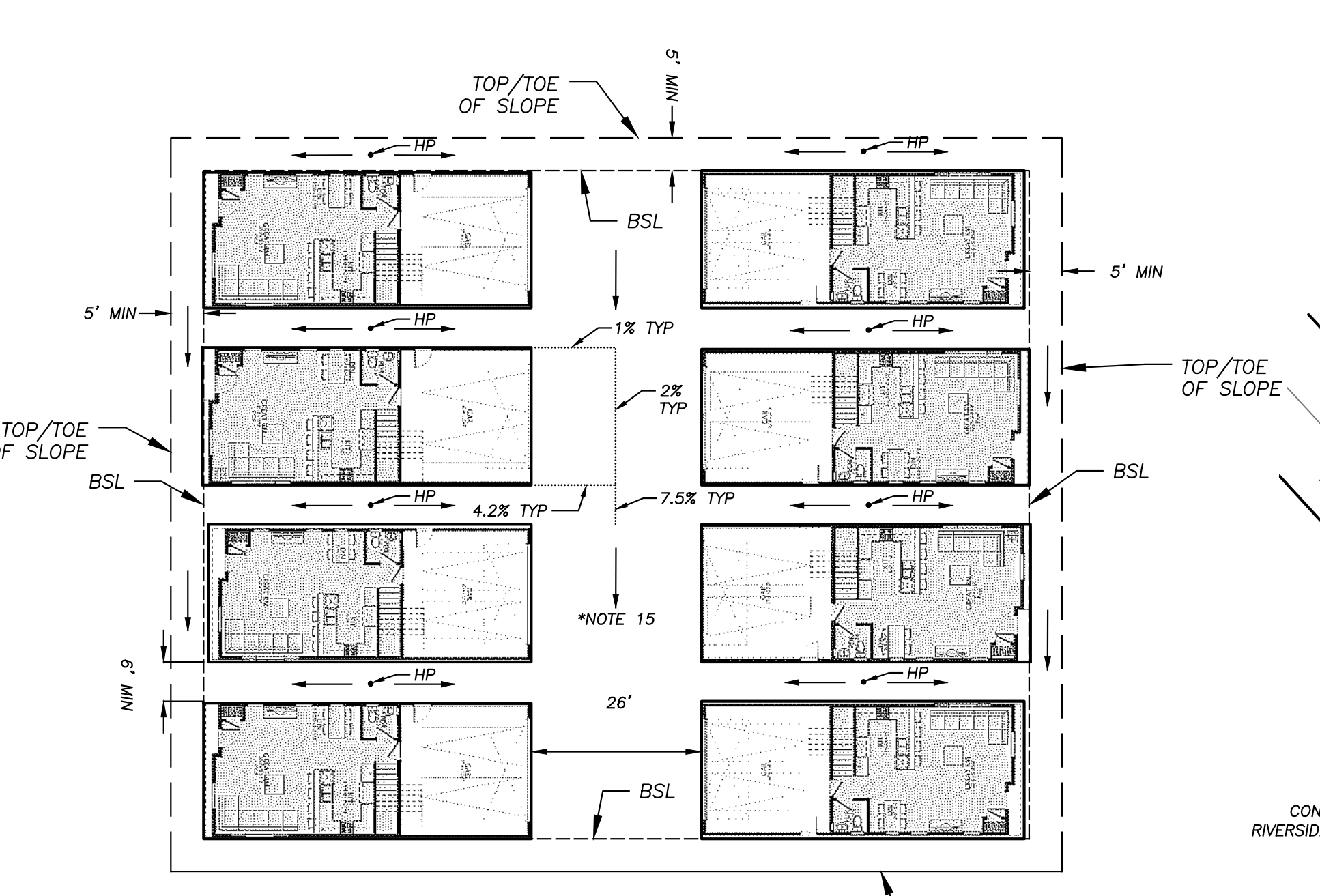
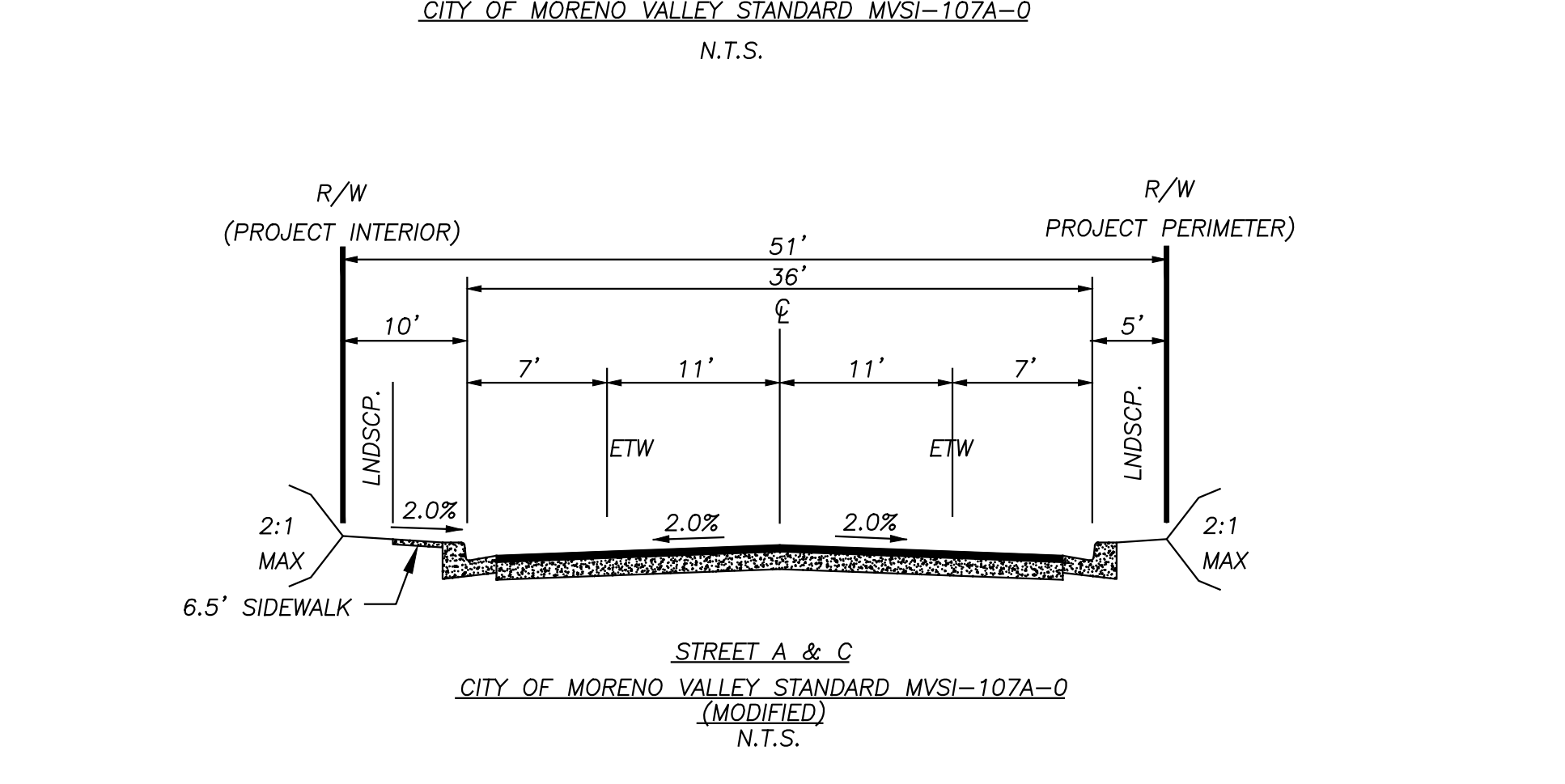
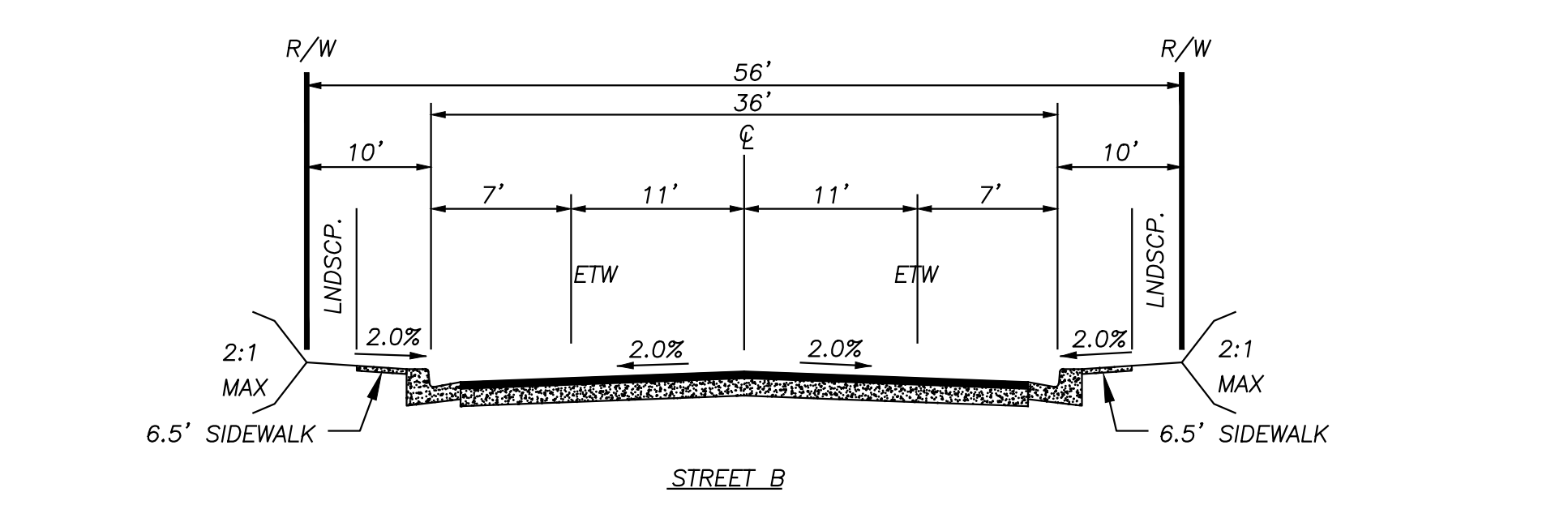
WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25634 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7900		

PROJECT DISTURBANCE:

GROSS SITE AREA: 32.80 AC
 NET SITE AREA (AREA OF DISTURBANCE): 15.43 AC
 TOTAL IMPERVIOUS SURFACE AREA: 10.03 AC



* MINIMUM SETBACKS PER CALIFORNIA BUILDING CODE 1808.7,
 - TOE OF SLOPE = AT LEAST THE SMALLER OF H/2 OR 15'
 - TOP OF SLOPE = AT LEAST THE SMALLER OF H/3 OR 40'



SUBMITTALS:		REVISIONS		DATE
NO.	DESCRIPTION	NO.	DESCRIPTION	DATE



CHRISTOPHER F. LENZ DATE
 R.C.E. No. 63001



8885 Haven Avenue
 Suite 195
 Rancho Cucamonga,
 CA 91730
 Phone: 909 466 9240
 www.unitedeng.com

PRELIMINARY GRADING PLAN	NOVEMBER 2022
GATEWAY HEIGHTS CONDITIONAL USE PERMIT PEN21-0066	SHEET 1 OF 1 PROJECT NUMBER CA-30182

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.
SITE PLAN (PEN21-0066)
 BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN
 UNITED ENGINEERING GROUP CA., INC NOVEMBER 2022

LEGAL DESCRIPTION:

THAT PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY; THENCE RUNNING SOUTH ALONG THE WEST LINE OF SAID SECTION 34, 23.50 CHAINS TO THE CORNER MONUMENT MARKING THE NORTHWEST CORNER OF THE LAND CONVEYED TO CECIL R. G. WEBBE TO CHARLES M. DEXTER BY DEED RECORDED IN BOOK 141, PAGE 398, OF DEEDS, SAN BERNARDINO COUNTY RECORDS;
 THENCE NORTH 56 DEGREES 31' EAST ALONG THE LINE OF LAND SO CONVEYED TO CHARLES M. DEXTER, 23.91 CHAINS TO THE NORTHEAST CORNER OF SAID LAND SO CONVEYED TO CHARLES M. DEXTER;
 THENCE NORTH ALONG THE CENTER LINE OF THE NORTHWEST QUARTER OF SAID SECTION 34, 10.40 CHAINS TO THE NORTH LINE OF SAID SECTION 34; THENCE WEST ALONG THE NORTH LINE OF SAID SECTION, 20 CHAINS TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY INTEREST OF THE COUNTY OF RIVERSIDE IN AND TO THAT PORTION LYING WITHIN MORTON ROAD.

ALSO EXCEPTING THEREFROM THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING SOUTHWESTERLY OF SAID MORTON ROAD.

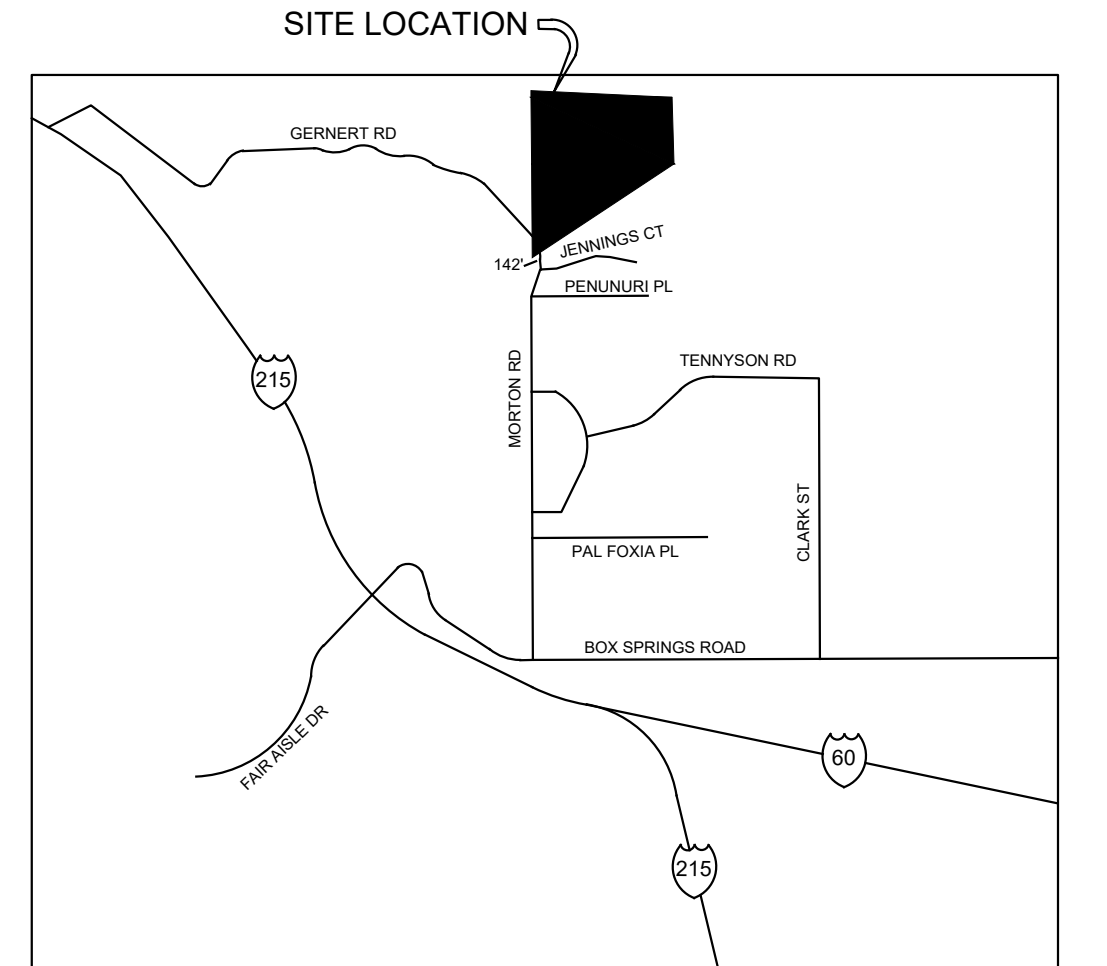
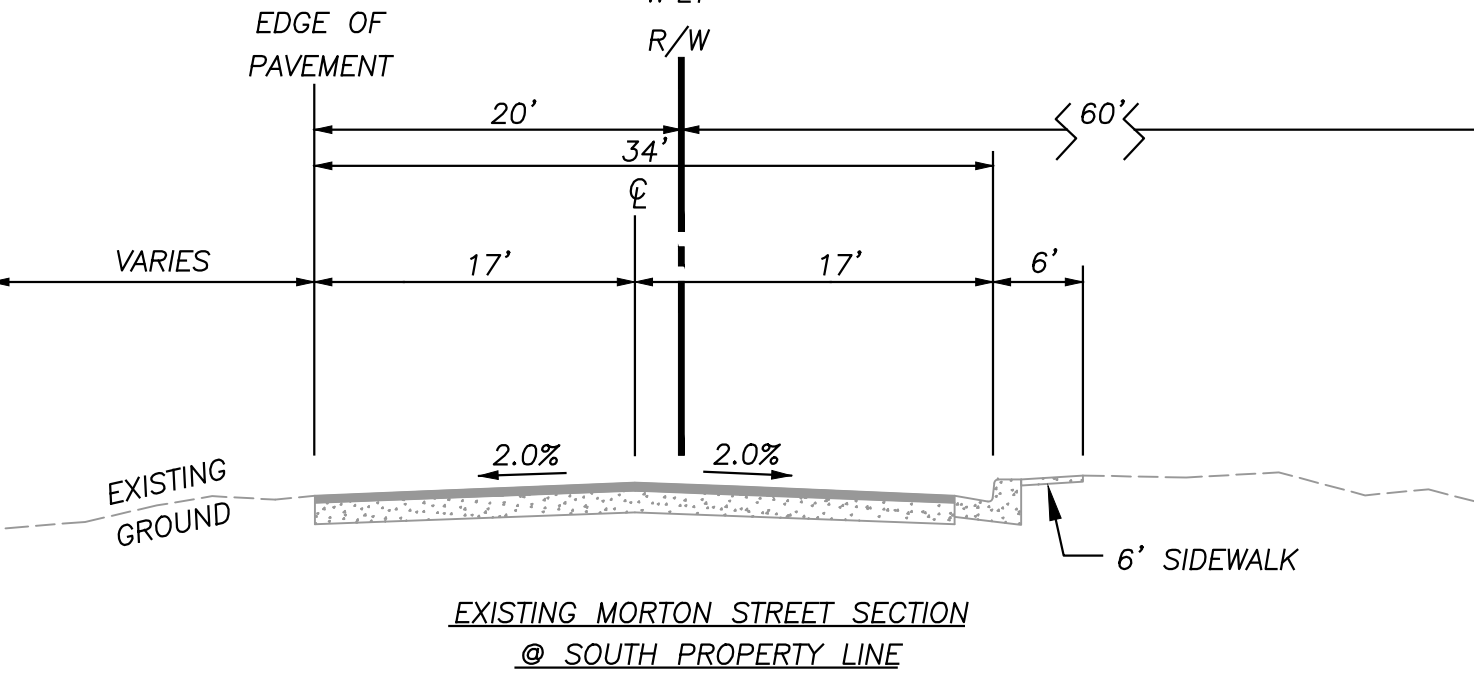
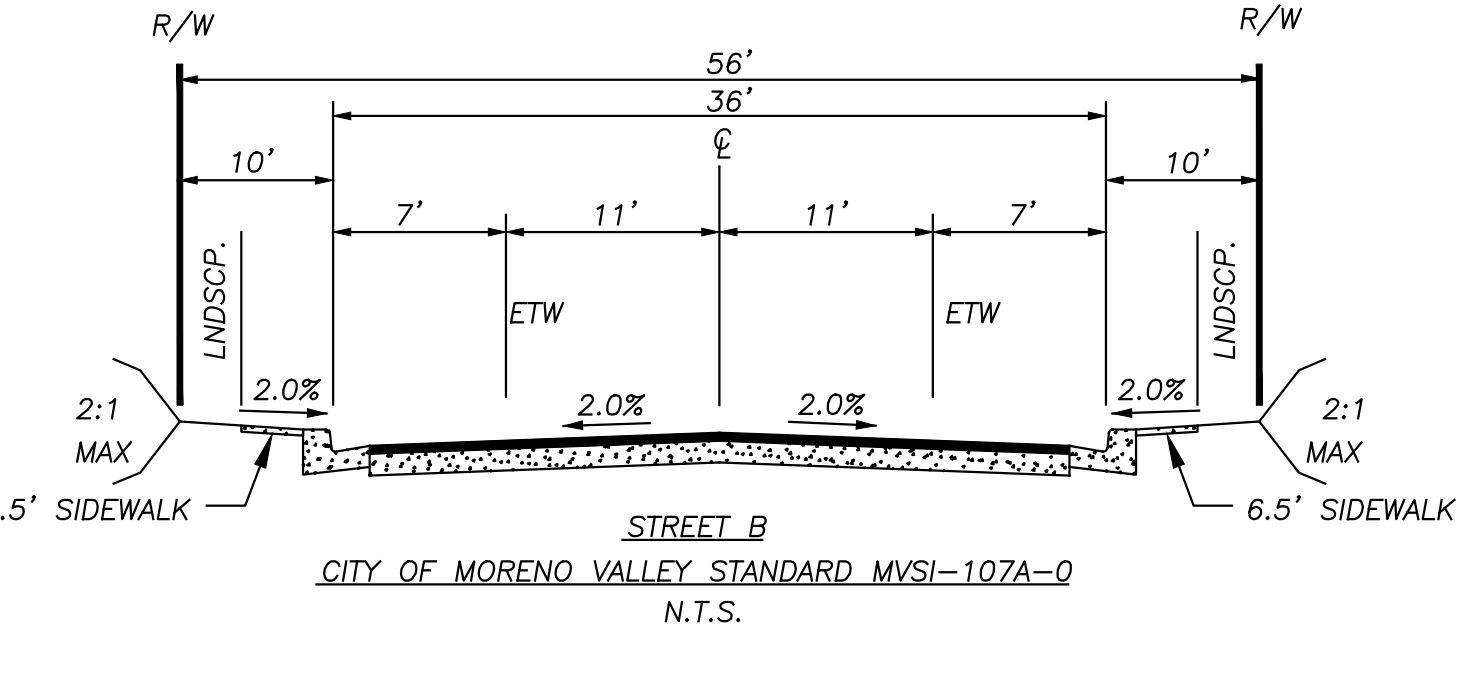
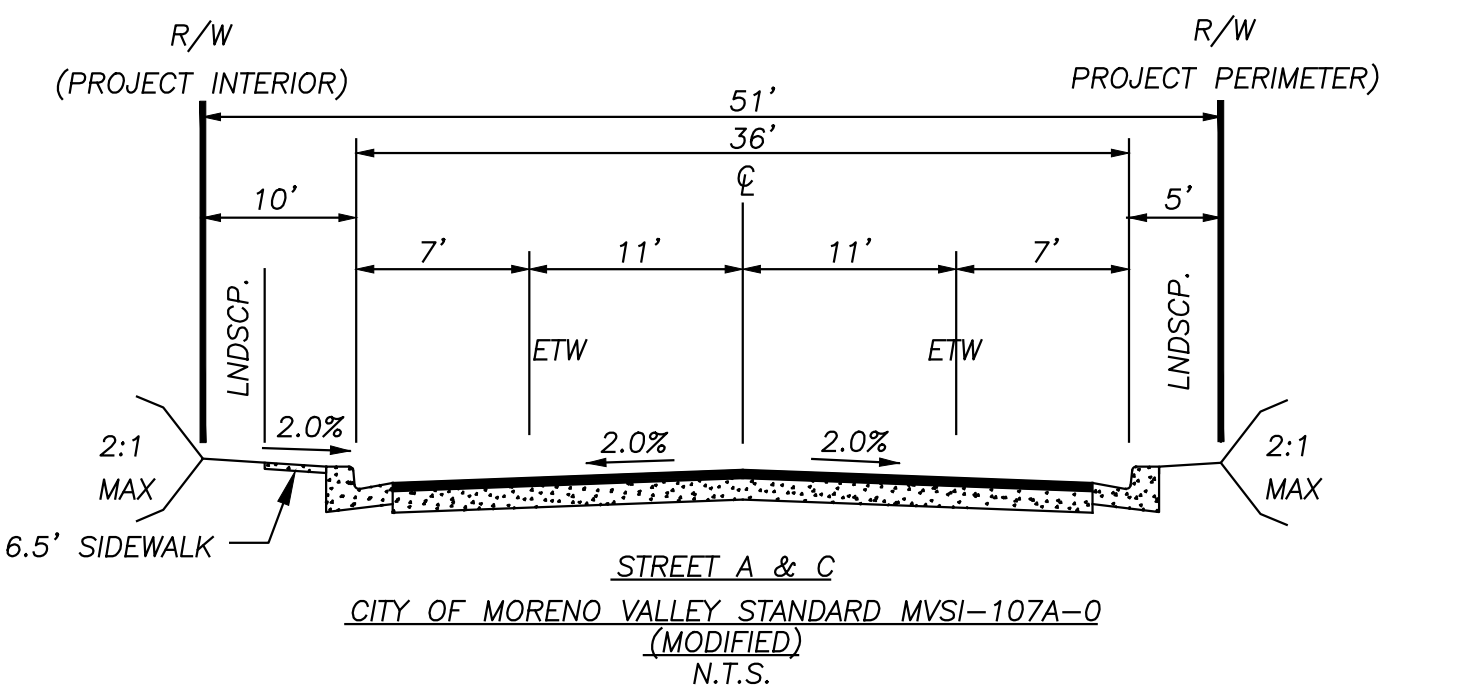
PARCEL NUMBER(S): 256-150-001

UTILITY PURVEYORS:

WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD FERRIS, CA. 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA. 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD FERRIS, CA. 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA. 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25834 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7500		

LEGEND

- FF FINISHED FLOOR
- FL FLOW LINE
- R/W RIGHT-OF-WAY
- BSL BUILDING SETBACK LINE
- FSL FIRE SEPERATION LINE
- PROPOSED SEWER LINE
- PROPOSED WATER LINE
- EXISTING SEWER LINE
- EXISTING WATER LINE
- DEVELOPMENT LIMITS
- PROJECT BOUNDARY
- CENTERLINE
- EXISTING DIRT ROAD
- PP POWER POLE
- OVERHEAD POWER LINE
- FUEL MODIFICATION ZONE
- DECORATIVE WALL



GENERAL NOTES:

- APN: 256-150-001
- TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL - 1 FT.
- THE LAND DOES NOT LIE WITHIN AN ALOQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALOQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP. PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
- THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
- THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
- THIS AREA IS NOT WITHIN FAULT ZONE.
- BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
- PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
- HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS AND FUEL MODIFICATION AREAS.
- PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
- ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
- TO THE BEST OF OUR KNOWLEDGE, MORTON ROAD NORTHERLY OF JENNINGS COURT HAS NOT BEEN VACATED FROM THE CURVE ALIGNMENT THAT IS RECORDED ON PM27548.
- PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
- REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.

SITE DATA

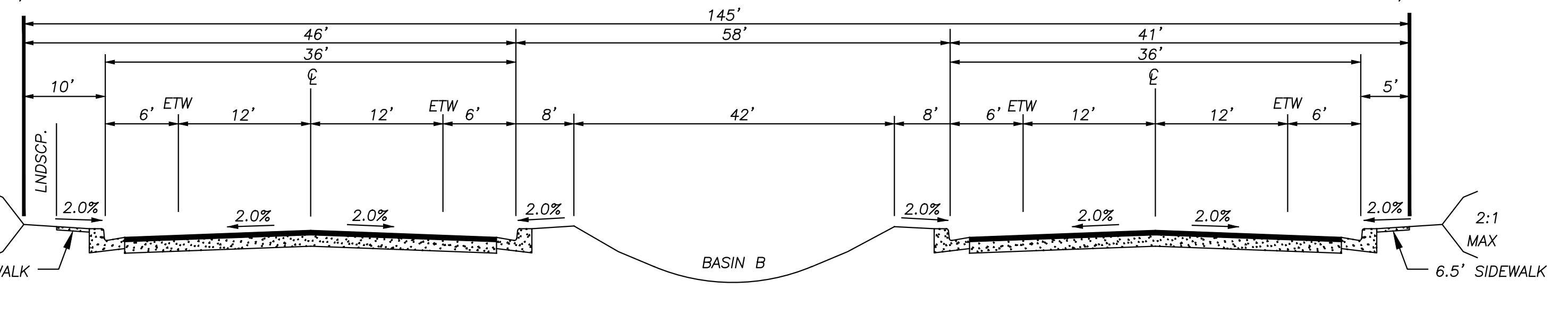
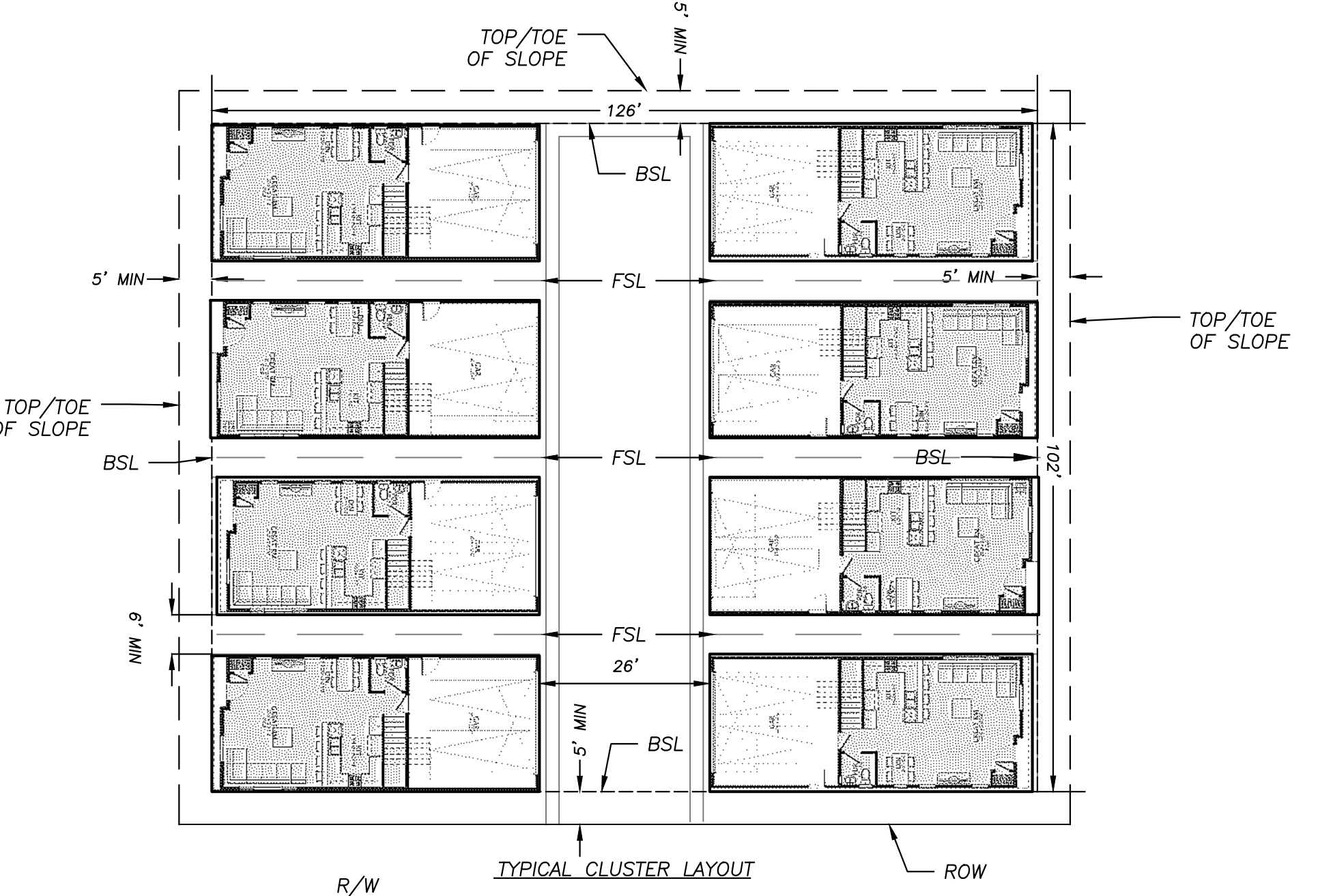
TOTAL GROSS AREA.....	32.56 ACRES
TOTAL NET AREA.....	32.56 ACRES
PROPOSED R10 ZONE.....	16.59 ACRES
PROPOSED OPEN SPACE ZONE.....	15.97 ACRES
DEVELOPMENT AREA.....	16.59 ACRES
UNITS 1 - 108.....	2,100 S.F./EACH (ALL 2 STORY)
PARKING SPACES REQ'D.....	216 (ENCLOSED GARAGE)
PROVIDED.....	216 (ENCLOSED GARAGE)
PARK AREA.....	0.89 ACRES
Basin A.....	12,131.24 S.F.
Basin B.....	13,855.37 S.F.
Street A, B, & C.....	2,447.60 L.F.
BUILDING SETBACKS.....	5' TO RIGHT OF WAY
MIN. BUILDING SEPARATION.....	6'
SIDE & REAR SETBACKS.....	5' MINIMUM TO TOP/TOE OF SLOPE (TOP OF SLOPE = H/2) (TOP OF SLOPE = H/3)

PROJECT LAND USE

EXISTING LAND USE.....VACANT
 PROPOSED LAND USE.....RESIDENTIAL
 EXISTING ZONING.....R2 AND HR
 PROPOSED ZONING.....R10 AND OS

SURROUNDING LAND USE

NORTH: HILLSIDE RESIDENTIAL (HR) & CONSERVATION (COUNTY OF RIVERSIDE)
 SOUTH: RESIDENTIAL MAX SDU/ACRE (R5)
 EAST: HILLSIDE RESIDENTIAL (HR)
 WEST: GATEWAY CENTER SPECIFIC PLAN (COUNTY OF RIVERSIDE)



DEVELOPER:

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OWNER/APPLICANT:

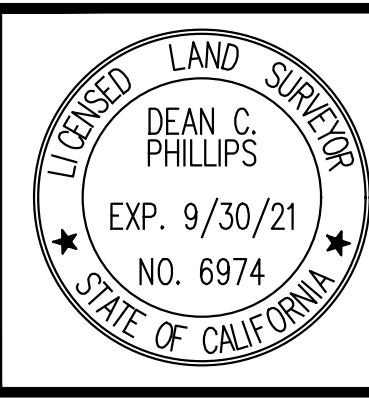
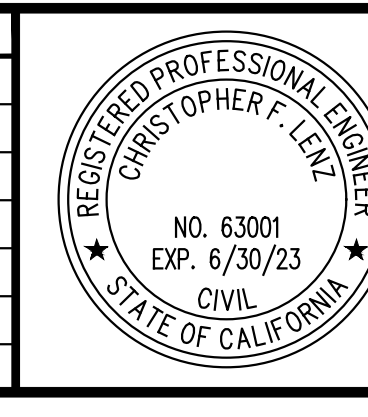
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NO.	REVISIONS	DATE

DESIGNED BY: CHRISTOPHER F. LENZ DATE: _____
 DRAWN BY: R.C.E. No. 63001
 CHECKED BY: _____



DEAN C. PHILLIPS DATE: _____
 L.S. No. 6974
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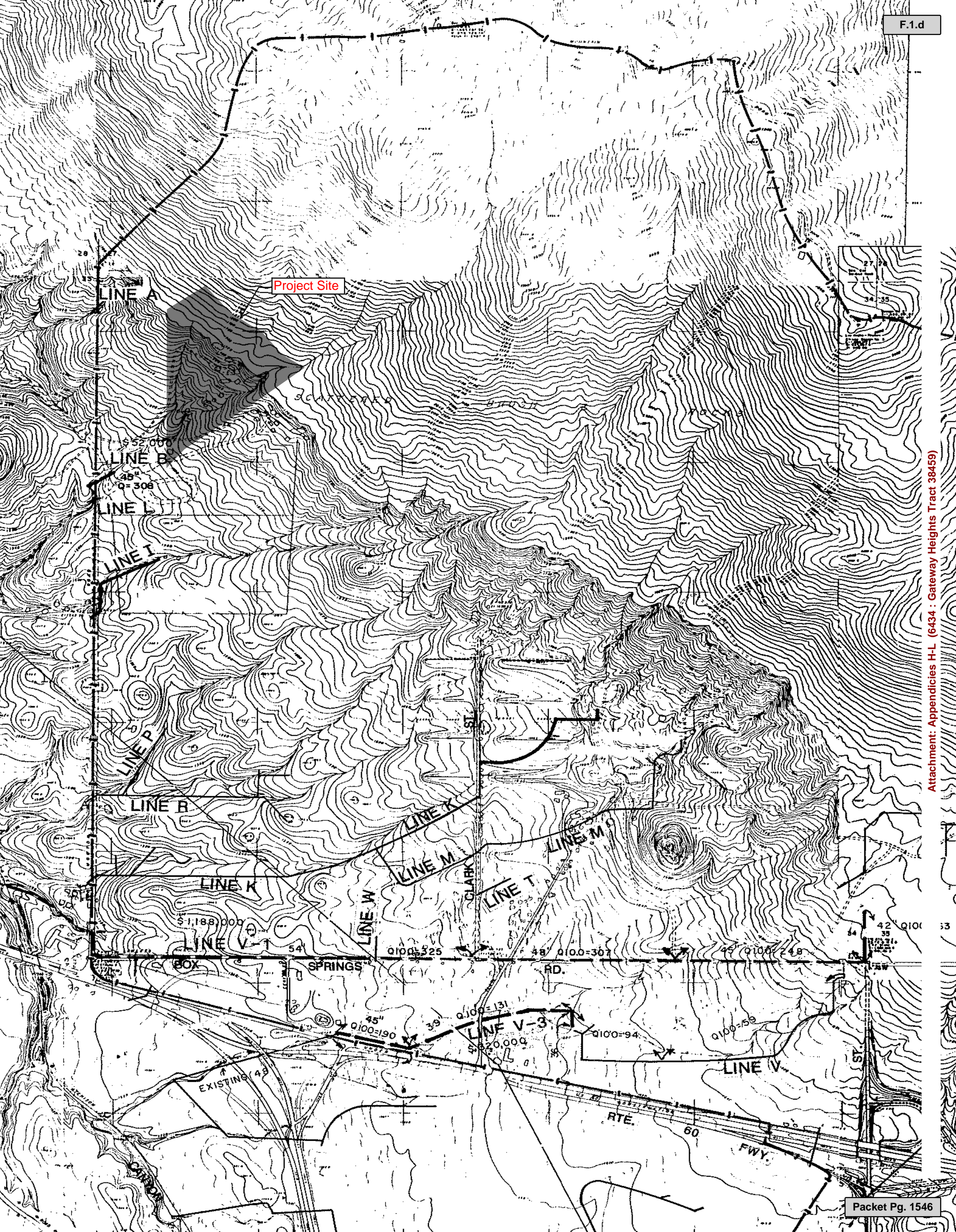


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SITE PLAN	NOVEMBER 2022
GATEWAY HEIGHTS CONDITIONAL USE PERMIT PEN21-0066	SHEET 1 OF 1
	PROJECT NUMBER CA-30182

Appendix E

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Appendix I
Project Specific Water Quality Management Plan

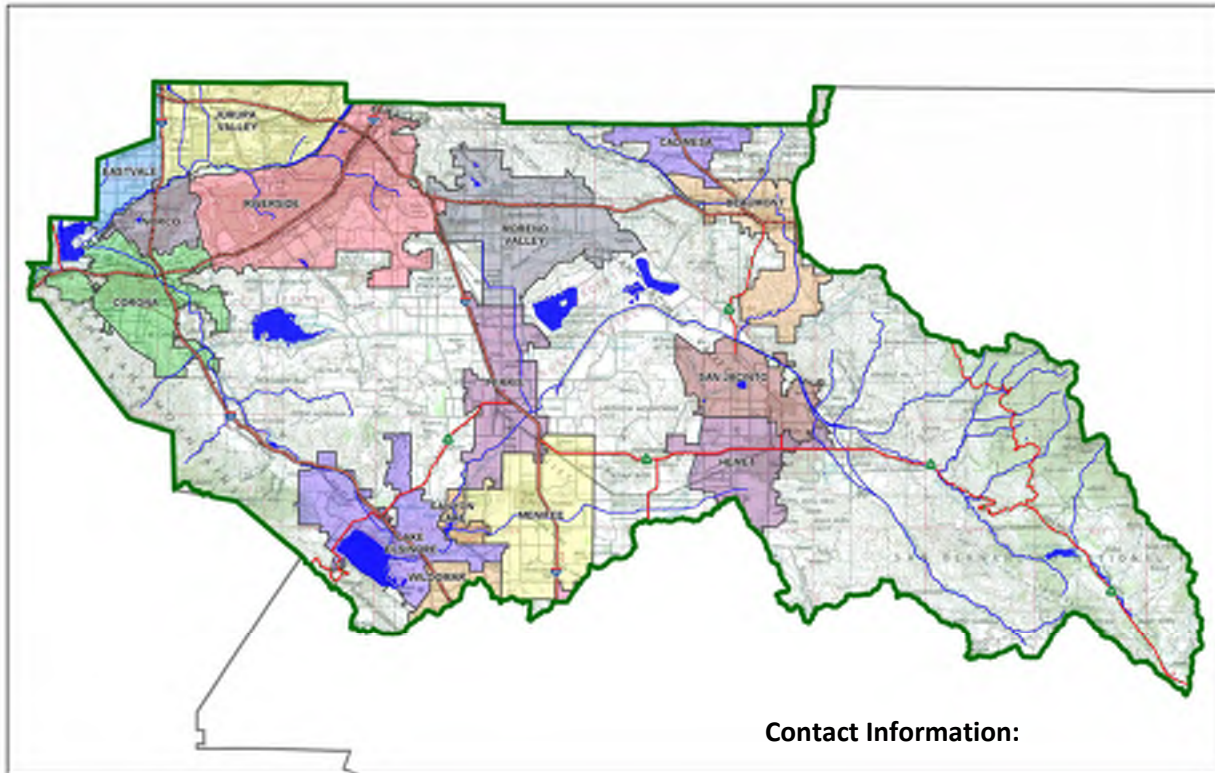
Project Specific Water Quality Management Plan

A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County

Project Title: Gateway Heights

Development No: PEN21-0066

Design Review/Case No: LWQ21-0014



- Preliminary
- Final

Original Date Prepared: March 8, 2021

Revision Date(s): Nov 24, 2021; March 23, 2022;
Oct 24, 2022; Nov 10, 2022

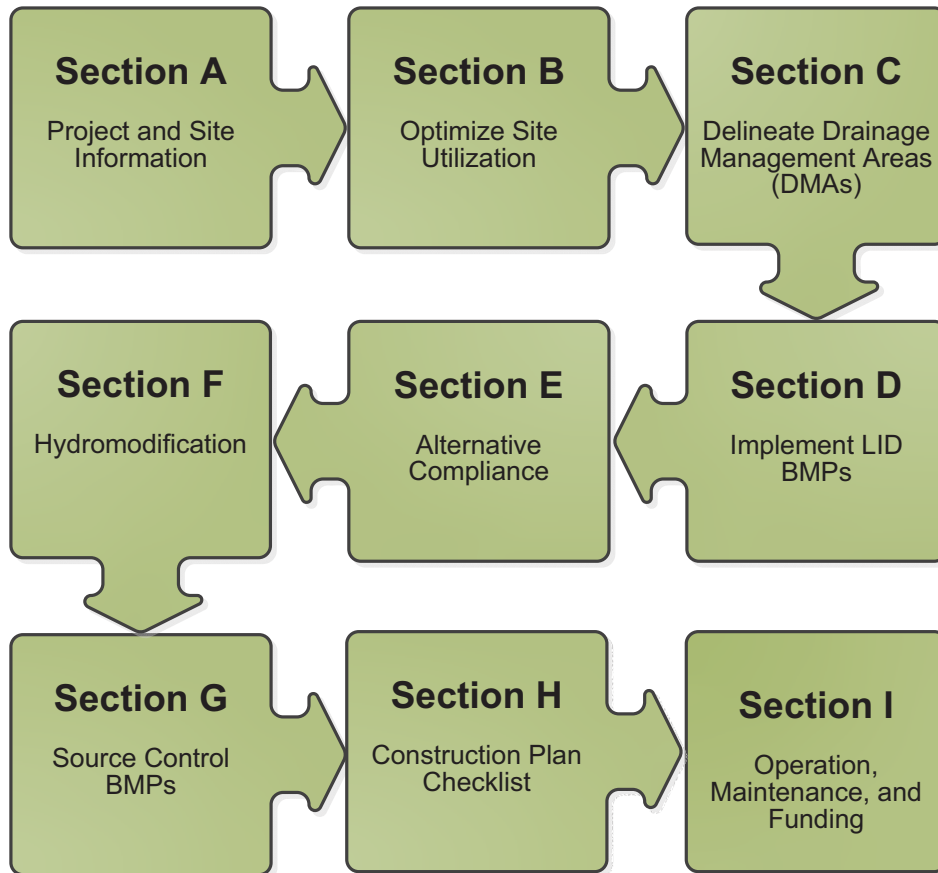
*Prepared for Compliance with
Regional Board Order No. **R8-2010-0033***

Prepared for: HengHou Group
Shizao Zheng
1378 West Zhongshan Rd
Ningbo, China 315-016
Prepared by: Christopher Lenz, P.E.,
Principal
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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your “how-to” manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

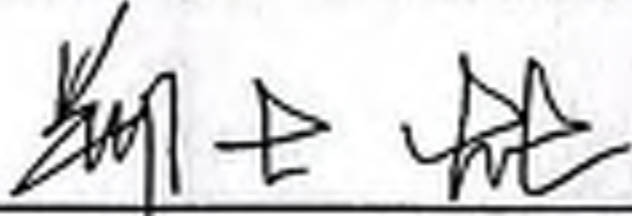
OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for HengHou Group by United Engineering Group CA, Inc. for the Gateway Heights project, PEN21-0066.

This WQMP is intended to comply with the requirements of City of Moreno Valley Ordinance 827 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under the City of Moreno Valley Water Quality Ordinance (Municipal Code 8.10).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."



Owner's Signature

11-15-2022

Date

郑士灶

Owner's Printed Name

President

Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0033 and any subsequent amendments thereto."



Preparer's Signature

11-10-2022

Date

Christopher F. Lenz

Preparer's Printed Name

PE/ Principal Engineer

Preparer's Title/Position

Preparer's Licensure: CA 63001

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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Residential Development
Planning Area:	N/A
Community Name:	Moreno Valley
Development Name:	Gateway Heights
PROJECT LOCATION	
Latitude & Longitude (DMS): 33.956531, -117.296198	
Project Watershed and Sub-Watershed: Santa Ana, Middle Santa Ana River Watershed	
APN(s): 256-150-001, and -008	
Map Book and Page No.:	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Townhome Residential
Proposed or Potential SIC Code(s)	NA
Area of Impervious Project Footprint (SF)	672,131 @65%
Total Area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	436,885
Does the project consist of offsite road improvements?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Does the project propose to construct unpaved roads?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is the project part of a larger common plan of development (phased project)?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
EXISTING SITE CHARACTERISTICS	
Total area of <u>existing</u> Impervious Surfaces within the project limits (SF)	0
Is the project located within any MSHCP Criteria Cell?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
If so, identify the Cell number:	Insert text here.
Are there any natural hydrologic features on the project site?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Is a Geotechnical Report attached?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	C
What is the Water Quality Design Storm Depth for the project?	0.63"
Project Description:	
The 33 gross acre (includes hillside), 15.4 acre net, project is a proposed 216 cluster type unit development. There are offsite flows that impact the property, and the Line B Master Plan flows proposed to be routed along the south side of the project. Onsite flows are divided into 6 DMA's with DMA A and B Routed to combination Bio Retention and Flood Detention Basins for treatment. There are three areas DMA's D, E, and F that are self treating hillside areas. And there is one area at the southwest corner, DMA C, that cannot be accepted into the projects water quality treatment due to design grades. The site has no infiltration potential.	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Source Control BMPs
- Buildings, Roof Lines, Downspouts

- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Impervious Surfaces
- Standard Labeling

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water’s 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Box Springs Canyon	None	None	None
Tequesquite Arroyo	None	GWR, REC1, REC2, WARM, WILD, SPWN	None
Santa Ana River Reach 3	Indicator Bacteria, Copper, Lead	AGR, GWR, REC1, REC2, WARM, WILD, RARE, SPWN	7.8 mi
Prado Flood Control Basin	PH	REC1, REC2, WARM, WILD, RARE	16.4 mi

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Army Corps of Engineers, CWA Section 404 Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Statewide Construction General Permit Coverage	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Industrial General Permit Coverage	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Other (please list in the space below as required)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
City of Moreno Valley Grading Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Yes. Existing drainage patterns are preserved at the northern edge of the site, and along the southern edge of the site, through avoidance by the development limits, and dedication of a 50' drainage easement along the southern wash.

Did you identify and protect existing vegetation? If so, how? If not, why?

Yes, the 50' setback and avoidance of the wash will preserve existing vegetation.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

n/a. The site has limited to no infiltration potential.

Did you identify and minimize impervious area? If so, how? If not, why?

Yes. Impervious areas have been minimized by utilizing narrow streets, providing natural open space, developed open space, trails, recreational areas and park areas.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Yes, bio retention basins have been incorporated into the design of the project.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s) ¹	Area (acres)	DMA Type
DMA A	Townhomes, roads, slopes	4.0	Type D
DMA B	Townhomes, roads, slopes	10.9	Type D
DMA C	Road	0.3	No Treatment Possible
DMA D	Hillside	4.5	Type A
DMA E	Hillside	12.7	Type A
DMA F	Hillside	0.6	Type A

¹Reference Table 2-1 in the WQMP Guidance Document to populate this column

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
DMA D	194131	none	none
DMA E	554069	none	none
DMA F	25195	Landscaping	Irrigated (Design at Final)

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet)	Storm Depth (inches)	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]
		[A]	[B]			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Runoff factor	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]		[D]	[C]/[D]

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA A	BMP A
DMA B	BMP B

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

DMA C – A portion of the main entrance to the site (Street A) and Morton Road is not able to be treated. The grades and conditions of the road in this area do not allow for the collection and treatment of the runoff, as the site sits well above grade from Morton Road. Also, the project is at a highpoint in Morton Rd so any acceptance and routing of street flow should be further downstream along Morton Road. The areas around Morton Road, including any future right of way, is also unable to provide for treatment as the grades in the area fall off significantly to the southwest. Runoff from this area will continue in the existing condition, by flowing into the natural channel southwest of the road.

At 0.3 acres, DMA C represents a negligible percentage of the impervious area at less than 5%.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream ‘Highest and Best Use’ for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? Y N

If yes has been checked, Infiltration BMPs shall not be used for the site. If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream ‘Highest and Best Use’ feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermitee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? Y N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site...	YES	NO
...have any DMAs with a seasonal high groundwater mark shallower than 10 feet? If Yes, list affected DMAs:		x
...have any DMAs located within 100 feet of a water supply well? If Yes, list affected DMAs:		x
...have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact? If Yes, list affected DMAs:		x
...have measured in-situ infiltration rates of less than 1.6 inches / hour? If Yes, list affected DMAs:	x	
...have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface? If Yes, list affected DMAs:		x
...geotechnical report identify other site-specific factors that would preclude effective and safe infiltration? Describe here:		x

If you answered “Yes” to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies:

- Reclaimed water will be used for the non-potable water demands for the project.
- Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).
- The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If neither of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

- Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.
Total Area of Irrigated Landscape: 5.4 acres (15.43 acres *35%)
Type of Landscaping (Conservation Design or Active Turf): Mixed (Active Turf in Park)
- Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.
Total Area of Impervious Surfaces: 10.0 acres (15.43 acres *65%)
- Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).
Enter your EIATIA factor: 1.05
- Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.
Minimum required irrigated area: 10.5 acres
- Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
10.5 acres	5.4 acres

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: 346

Project Type: Residential Condo Estimate (108 units x 3.2 persons/unit)

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

*Total Area of Impervious Surfaces: 10.0 acres (15.43 acres *65%)*

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-1 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 108

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 1,080

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
1,080	346

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: Projected Average Daily Use (gpd)

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-3 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-3: Enter Value

Step 4: Multiply the unit value obtained from Step 4 by the total of impervious areas from Step 3 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: Minimum use required (gpd)

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required non-potable use (Step 4)	Projected average daily use (Step 1)
Minimum use required (gpd)	Projected Average Daily Use (gpd)

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment, unless a site-specific analysis has been completed that demonstrates technical infeasibility as noted in D.3 below.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

- LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).
- A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DMA B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DMA C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMA D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DMA E	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DMA F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

DMA C – A portion of the main entrance to the site (Street A) is not able to be treated. The grades required in this area do not allow for the collection and treatment of the runoff, as the site sits well above grade from Morton Road. At 0.3 acres, DMA C represents a negligible percentage of the impervious area at less than 5%.

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Underground Storage North pumped to BMP 1		
						Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
A	174240	Mixed	0.65	0.45	78265			
	174240				78265	0.63	4,109	17,511

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	<i>Underground Storage South pumped to BMP 4</i>				
	[A]		[B]	[C]	[A] x [C]					
B	474804	Mixed	0.65	0.45	213272	<i>Design Storm Depth (in)</i>	<i>Design Capture Volume, V_{BMP} (cubic feet)</i>	<i>Proposed Volume on Plans (cubic feet)</i>		
	474804				213272	0.63	11,197	47,219		

Note: The final Effective Impervious Fraction, I_f , for Mixed surface types to be calculated and verified per Section 2.1.1 of the Riverside County Low Impact Development BMP Design Handbook, with final WQMP design, coupled with final building product design.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

X LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- Or -

The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project’s receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
<input type="checkbox"/> Detached Residential Development	P	N	P	P	N	P	P	P
<input type="checkbox"/> Attached Residential Development	P	N	P	P	N	P	P	P ⁽²⁾
<input type="checkbox"/> Commercial/Industrial Development	P ⁽³⁾	P	P ⁽¹⁾	P ⁽¹⁾	P ⁽⁵⁾	P ⁽¹⁾	P	P
<input type="checkbox"/> Automotive Repair Shops	N	P	N	N	P ^(4, 5)	N	P	P
<input type="checkbox"/> Restaurants (>5,000 ft ²)	P	N	N	N	N	N	P	P
<input type="checkbox"/> Hillside Development (>5,000 ft ²)	P	N	P	P	N	P	P	P
<input type="checkbox"/> Parking Lots (>5,000 ft ²)	P ⁽⁶⁾	P	P ⁽¹⁾	P ⁽¹⁾	P ⁽⁴⁾	P ⁽¹⁾	P	P
<input type="checkbox"/> Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

P = Potential

N = Not Potential

⁽¹⁾ A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

⁽²⁾ A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

⁽³⁾ A potential Pollutant is land use involving animal waste

⁽⁴⁾ Specifically petroleum hydrocarbons

⁽⁵⁾ Specifically solvents

⁽⁶⁾ Bacterial indicators are routinely detected in pavement runoff

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage ²
N/A	
Total Credit Percentage ¹	

¹Cannot Exceed 50%

²Obtain corresponding data from Table 3-8 in the WQMP Guidance Document

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I _f	DMA Runoff Factor	DMA Area x Runoff Factor	Enter BMP Name / Identifier Here				
	[A]		[B]	[C]	[A] x [C]					
						Design Storm Depth (in)	Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)	Total Storm Water Credit % Reduction	Proposed Volume or Flow on Plans (cubic feet or cfs)	
	$A_T = \sum[A]$				$\Sigma = [D]$	[E]				[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12

[H] is from the Total Credit Percentage as Calculated from Table E.2 above

[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High:** equal to or greater than 80% removal efficiency
- **Medium:** between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID ¹	Priority Pollutant(s) of Concern to Mitigate ²	Removal Efficiency Percentage ³

¹ Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.

² Cross Reference Table E.1 above to populate this column.

³ As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermitttee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? Y N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration¹ of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? Y N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

DMA A	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
Time of Concentration	INSERT VALUE	INSERT VALUE	INSERT VALUE
Volume (Cubic Feet)	INSERT VALUE	INSERT VALUE	INSERT VALUE
DMA B	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
Time of Concentration	INSERT VALUE	INSERT VALUE	INSERT VALUE
Volume (Cubic Feet)	INSERT VALUE	INSERT VALUE	INSERT VALUE

PT3	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
Time of Concentration	INSERT VALUE	INSERT VALUE	INSERT VALUE
Volume (Cubic Feet)	INSERT VALUE	INSERT VALUE	INSERT VALUE

¹ Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

Does the project qualify for this HCOC Exemption? Y N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

- a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.
- b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.
- c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Note: This project has no infiltration potential. It has been designed to detain the post development runoff and discharge it at rates less than the pre-development rates. In compliance with condition C above this project will match the 2yr 24hr predevelopment runoff rates through storage volume and discharge control. It is assumed that the 6" underdrains or orifice design will be used to limit the peak runoff. Refer to Appendix 7 for detailed output files for pre and post 2-yr 24-hr unit hydrographs and for basin sizing information. Summary table is below.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Moreno Valley 33 - Area A Pre-Development								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	5.4	0.13	2.9	0.14	2.5	0.15	0.5	0.12
5 year	7.8	0.20	4.1	0.23	3.6	0.24	1.0	0.25
10 year	9.6	0.26	5.1	0.31	4.5	0.32	1.4	0.37
100 year	16.2	0.51	8.9	0.75	7.9	0.94	3.1	1.35

Moreno Valley 33 - Area A Post-Development								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	4.6	0.12	2.4	0.18	2.1	0.23	0.7	0.40
5 year	6.5	0.17	3.3	0.24	3.0	0.32	0.9	0.53
10 year	8.0	0.21	4.1	0.30	3.6	0.38	1.1	0.63
100 year	13.1	0.37	6.8	0.55	6.1	0.69	2.3	1.17

Moreno Valley 33 - Area A Post-Development Routed								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year							0.5*	0.02
100 year	0.5	0.33	6.4	0.21	5.5	0.21	2.3	0.19

By orifice control or 6" underdrain slope

Moreno Valley 33 - Area B Pre-Development								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	8.2	0.18	4.1	0.20	3.5	0.21	0.7	0.18
5 year	11.8	0.29	6.0	0.33	5.1	0.35	1.4	0.37
10 year	14.5	0.38	7.4	0.45	6.3	0.47	2	0.54
100 year	24.4	0.74	12.9	1.09	11.2	1.37	4.5	1.96

Moreno Valley 33 - Area B Post-Development (Area B and C Pre-Development)								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	11.4	0.31	6.4	0.48	5.6	0.64	1.8	1.09
5 year	16.2	0.45	8.9	0.66	7.9	0.86	2.4	1.44
10 year	19.9	0.56	10.9	0.80	9.6	1.04	3.1	1.73
100 year	32.7	1.01	18.2	1.5	16.2	1.89	6.2	3.18

Moreno Valley 33 - Area B Post-Development Routed								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year							0.7*	0.35
100 year	18.0	0.76	15.9	0.73	13.8	0.71	6.1	0.63

*By orifice control or 6" underdrain slope

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and “housekeeping”, that must be implemented by the site’s occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. **Identify Pollutant Sources:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.
2. **Note Locations on Project-Specific WQMP Exhibit:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.
3. **Prepare a Table and Narrative:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.
4. **Identify Operational Source Control BMPs:** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On site storm drain inlets	Mark all inlets with “Only Rain Down the Storm Drain”.	Maintain markings and provide info to owners. Provide stormwater pollution prevention information to new site owners, lessees, or operators. See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at

		<p>www.cabmphandbooks.com</p> <p>Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains.”</p>
Landscape/Outdoor Pesticides	<p>Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.</p> <p>Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.</p> <p>Consider using pest-resistant plants, especially adjacent to hardscape.</p> <p>To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.</p>	<p>Maintain with no or minimal pesticides.</p> <p>See applicable operational BMPs in “What you should know for.....Landscape and Gardening” at http://rcflood.org/stormwater/</p> <p>Provide IPM information to new owners, lessees and operators.</p>
Vehicle and Equipment Cleaning	<p>If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced. HOA to discourage onsite washing.</p>	<p>Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to “Outdoor Cleaning Activities and Professional Mobile Service Providers” for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/</p>
<p>Miscellaneous Drain or Wash Water or Other Sources</p> <ul style="list-style-type: none"> - Condensate drain lines - Rooftop equipment 	<p>Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.</p>	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

<p>- Roofing, gutters, and trim.</p>	<p>Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.</p> <p>Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.</p>	
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Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)
BMP A	Basin at the southwest corner of site within the street section	Preliminary BMP Siteplan
BMP B	Basin at the southwest corner of site north of the entrance	Preliminary BMP Siteplan

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: Home Owner or Property Owners Association

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

Y N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

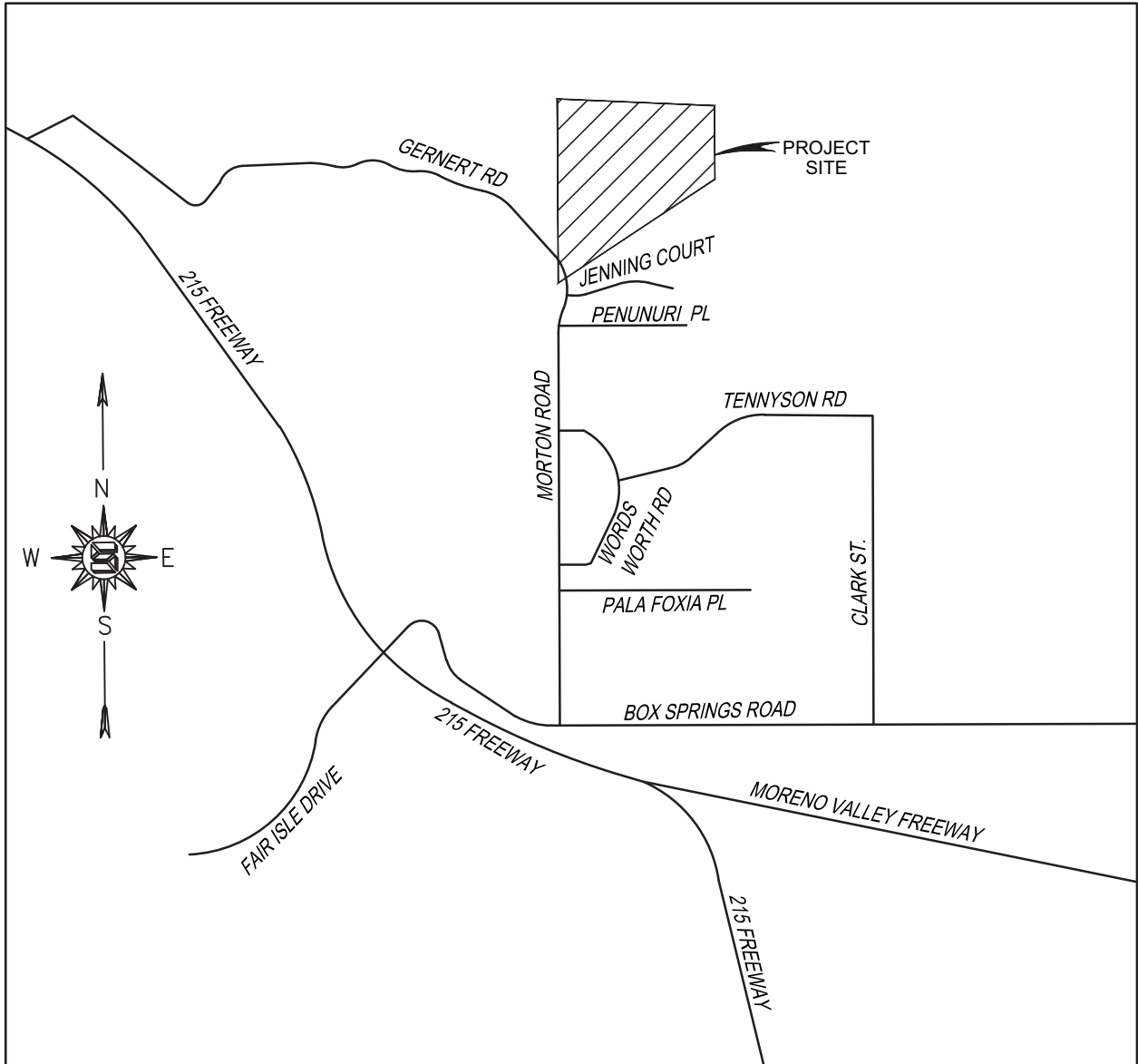
Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Figure 1- Vicinity Map

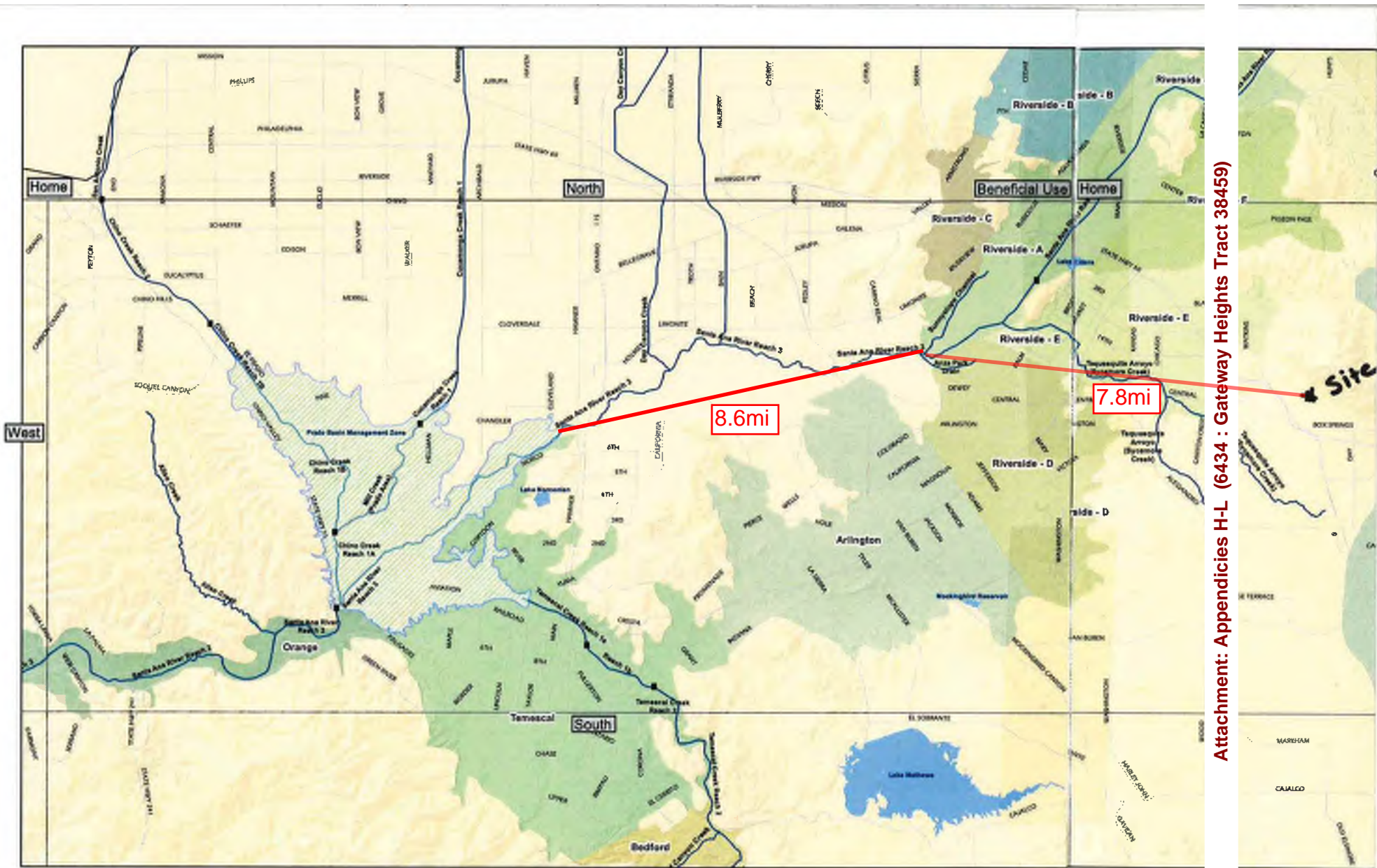
Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



VICINITY MAP
NOT TO SCALE

Figure 2- Receiving Waters Map

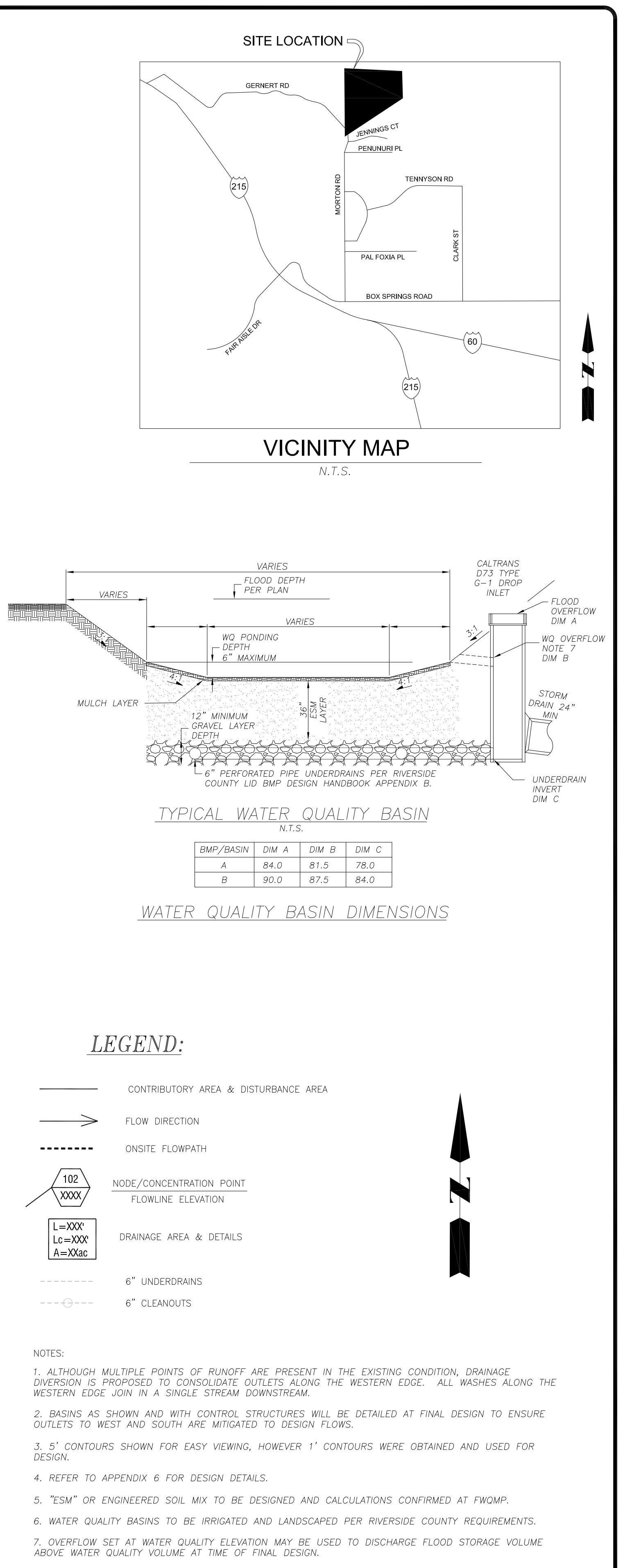
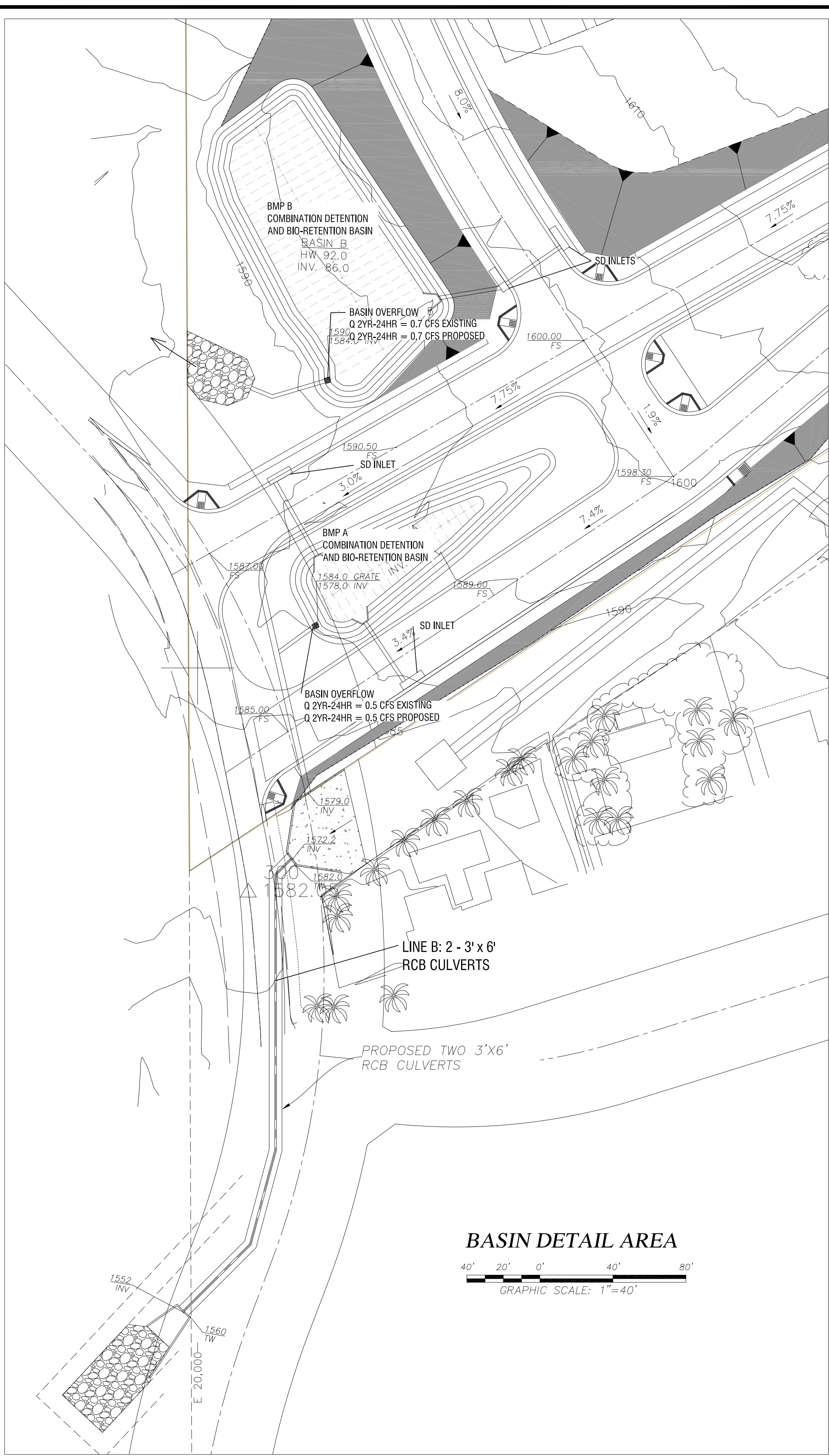
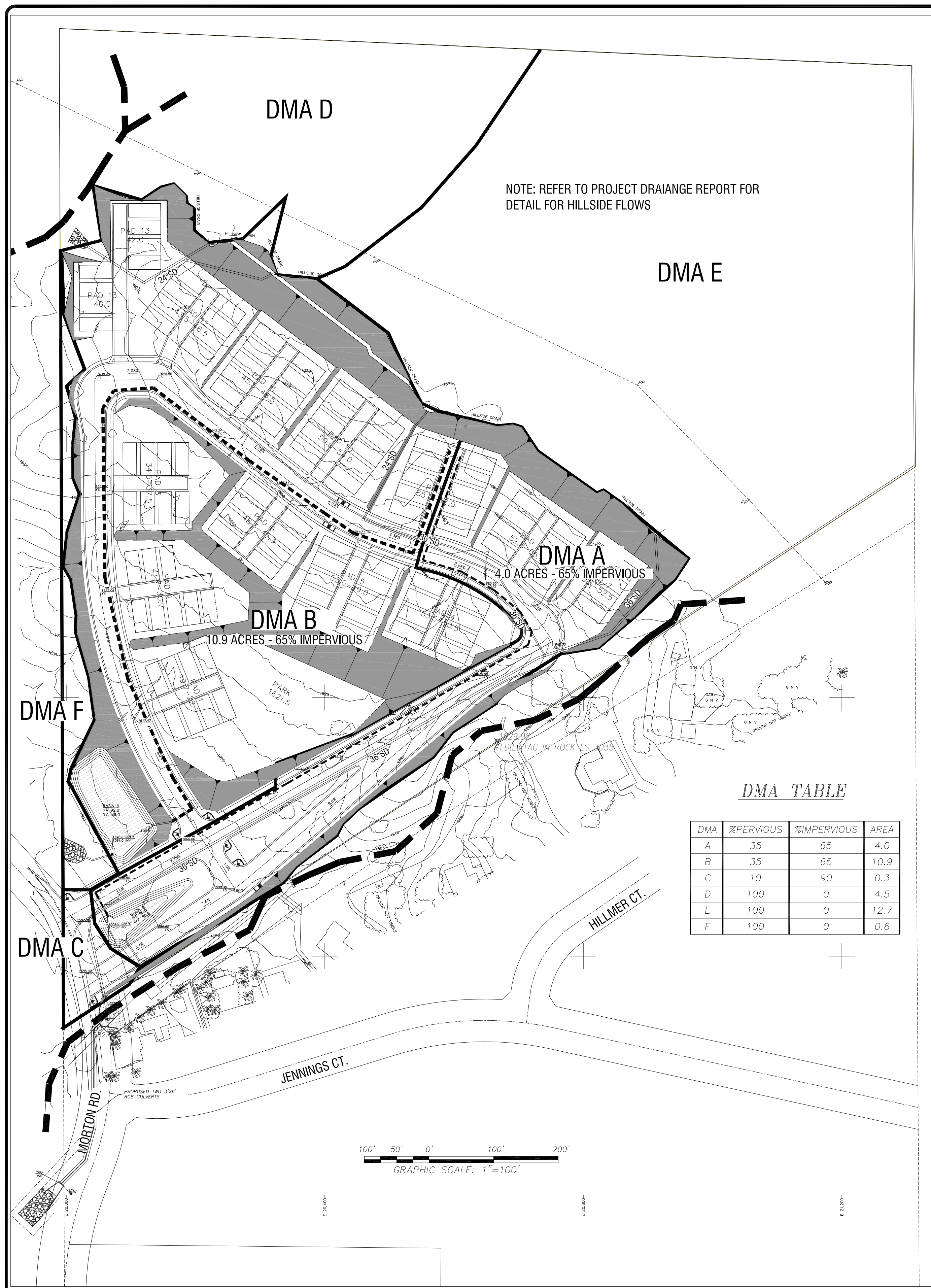
Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Figure 3- WQMP Site Plan

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



SUBMITTALS:	REVISIONS		
	NO.	DESCRIPTION	DATE
DESIGNED BY:			
DRAWN BY:			
CHECKED BY:			

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER F. LENZ
NO. 63001
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

CHRISTOPHER F. LENZ DATE
R.C.E. No. 63001

LICENSED LAND SURVEYOR
DEAN C. PHILLIPS
EXP. 9/30/23
NO. 6974
STATE OF CALIFORNIA

DEAN C. PHILLIPS DATE
L.S. No. 6974
dphillips@unitedeng.com

ueg
united engineering group

8885 Haven Avenue
Suite 195
Rancho Cucamonga,
CA 91730
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www.unitedeng.com

GATEWAY HEIGHTS

WQMP SITEPLAN

DATE: OCTOBER 2022
SHEET 1 OF 1
PROJECT NUMBER: CA-30182

Appendix 2: Construction Plans

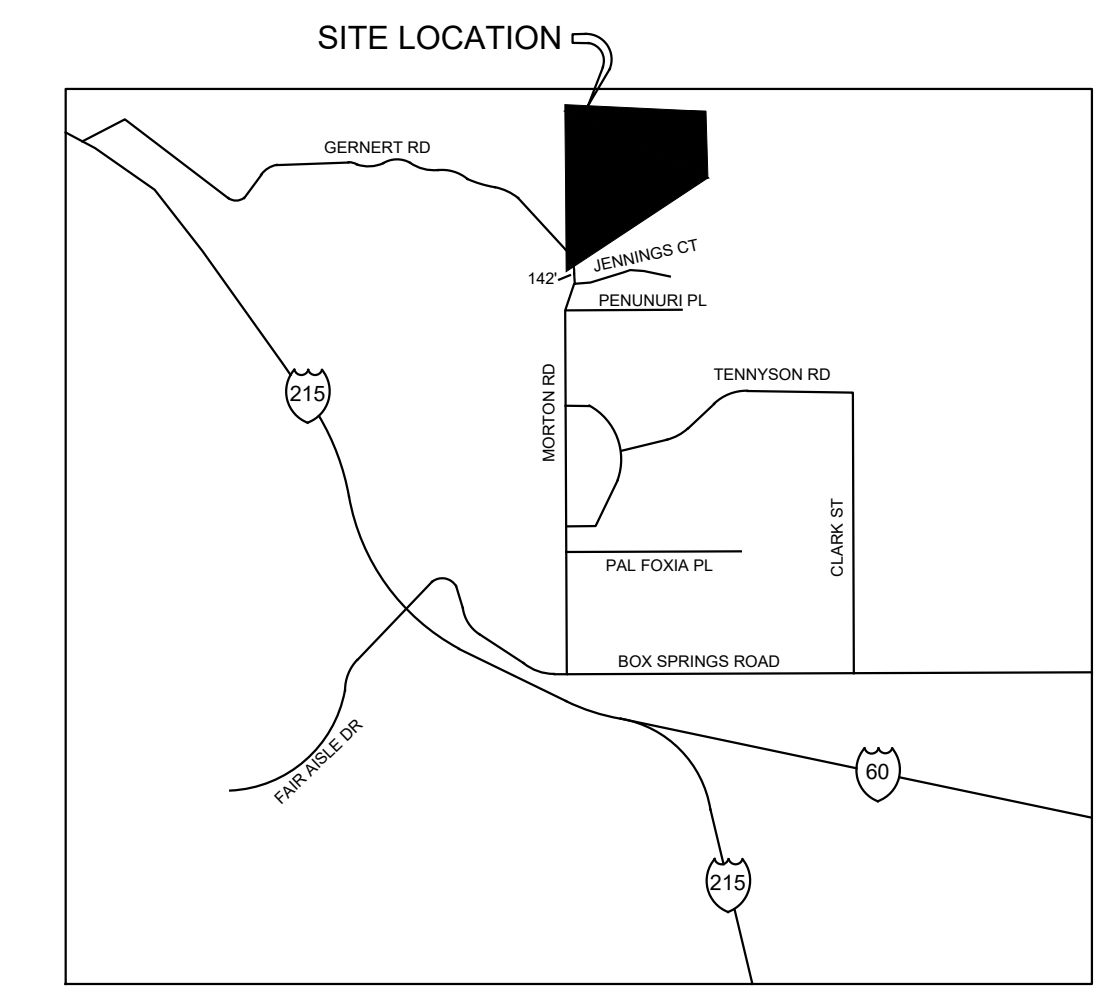
Grading and Drainage Plans

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.
PRELIMINARY GRADING PLAN (PEN21-0066)

BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN

UNITED ENGINEERING GROUP CA., INC NOVEMBER 2022



VICINITY MAP
N.T.S.

GENERAL NOTES:

1. APN: 256-150-001
2. TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL-1FT.
3. THE LAND DOES NOT LIE WITHIN AN ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP, PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
4. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
5. THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
6. THIS AREA IS NOT WITHIN FAULT ZONE.
7. BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
8. PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
9. HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS AND FUEL MODIFICATION AREAS.
10. PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
11. ALL GRADING WORK SHOWN ON THIS PLAN SHALL BE DONE IN COMPLIANCE WITH CHAPTER 33 OF THE UNIFORM BUILDING CODE AND LOCAL ORDINANCE.
12. PRIOR TO ANY GRADING WORK, A GRADING PERMIT SHALL BE OBTAINED FROM THE CITY OF MORENO VALLEY BUILDING DEPARTMENT.
13. ALL GRADING SHALL CONFORM TO THE RECOMMENDATIONS AND REQUIREMENTS OF THE PRELIMINARY SOILS REPORT DATED SEPTEMBER 22, 2018 BY LGC GEO-ENVIRONMENTAL, INC.
14. ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
15. PADS 4, 5, AND 6 DEVIATE FROM THE STANDARD GRADING DETAILS TO DRAIN TOWARDS THE PARK, AWAY FROM THE STREET. AT FINAL DESIGN STORM DRAIN MAY BE REQUIRED TO COLLECT AND ROUTE FLOWS TO THE PARK AREA.
16. PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
17. REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORNINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.
18. OFFSITE AREA OUTSIDE OF PROJECT TOPOGRAPHY LIMITS. AT FINAL DESIGN AND IN CONJUNCTION WITH LINE B DESIGN, ADDITIONAL DESIGN SURVEY WILL BE REQUIRED.
19. PROJECT STREET LIGHT DESIGN TO COMPLY WITH CITY STANDARDS. STREET LIGHT DESIGN PLANS TO BE PREPARED WITH FINAL DESIGN DRAWINGS.

LEGEND

FF	FINISHED FLOOR	FS	FINISHED SURFACE
FL	FLOW LINE	HW	HIGH WATER
R/W	RIGHT-OF-WAY	HW	INVERT
BSL	BUILDING SETBACK LINE	TC	TOP OF CURB
EP	EDGE OF PAVEMENT	HP	HIGH POINT

— S — S —	PROPOSED SEWER LINE
— W — W —	PROPOSED WATER LINE
— S — S —	EXISTING SEWER LINE
— W — W —	EXISTING WATER LINE
---	DEVELOPMENT LIMITS
---	PROJECT BOUNDARY
---	CENTERLINE
---	EXISTING DIRT ROAD
TP	POWER POLE
---	OVERHEAD POWER LINE
---	FUEL MODIFICATION ZONE
2:1	2:1 SLOPE (UNLESS OTHERWISE NOTED)
---	DECORATIVE WALL

ESTIMATED EARTHWORK QUANTITIES (RAW)

CUT: 90,148 CU. YDS. FILL: 56,011 CU. YDS.

NOTE: THE ABOVE QUANTITIES DO NOT REFLECT ANY SWELLING, SUBSIDENCE, OVER EXCAVATION, OR ANY SPECIAL CONDITIONS THAT MAY BE SPECIFIED IN THE PRELIMINARY SOILS REPORT AND ARE FOR REFERENCE AND FEE PURPOSES ONLY. SINCE THE ENGINEER CANNOT CONTROL THE EXACT METHOD OR MEANS USED BY THE CONTRACTOR DURING GRADING OPERATIONS, NOR CAN THE ENGINEER GUARANTEE THE EXACT SOIL CONDITION OVER THE ENTIRE SITE, THE ENGINEER ASSUME NO RESPONSIBILITY FOR THE FINAL EARTHWORK QUANTITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THEIR OWN EARTHWORK QUANTITIES FOR BIDDING, CONTRACT, AND CONSTRUCTION PURPOSES.

DEVELOPER:

JASON ACKERMAN
 3200 GUASTI ROAD #100
 ONTARIO, CA 91761
 (909) 456-1460 OFFICE
 (909) 292-6877 MOBILE
 jason.ackerman@ackermanlawpc.com

OWNER/APPLICANT:

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 NINGBO, CHINA 315-016
 (626) 666-1470

ENGINEER/PLAN PREPARER

UNITED ENGINEERS GROUP CA, INC
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 RANCHO CUCAMONGA, CA 91730
 (909) 466-9240 X203 OFFICE
 (909) 292-6877 MOBILE
 bcooper@unitedeng.com

GEOTECHNICAL ENGINEER

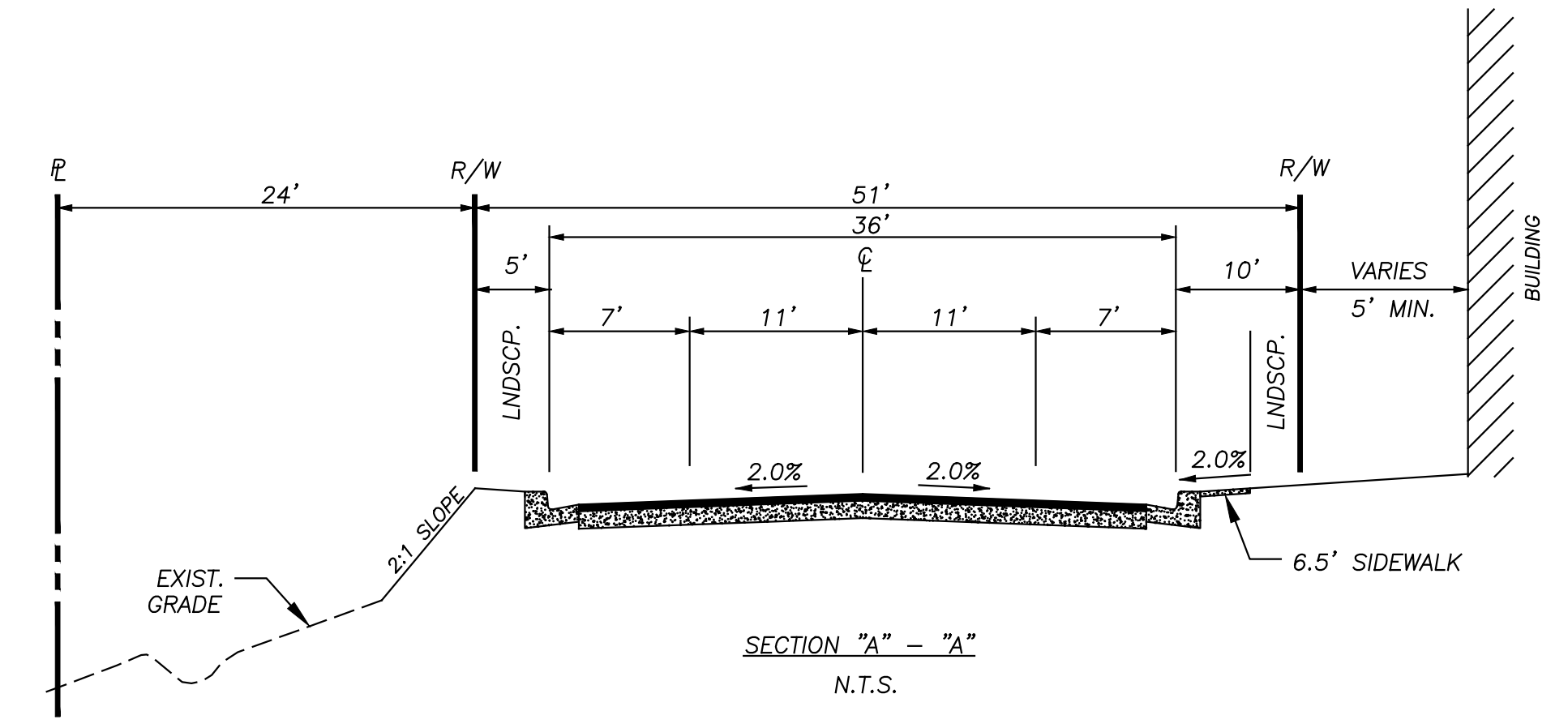
LGC GEO-ENVIRONMENTAL, INC.
 2750 COMMERCE CENTER DRIVE
 SUITE 128
 TEMECULA, CA 92590
 (951) 297-2450

UTILITY PURVEYORS:

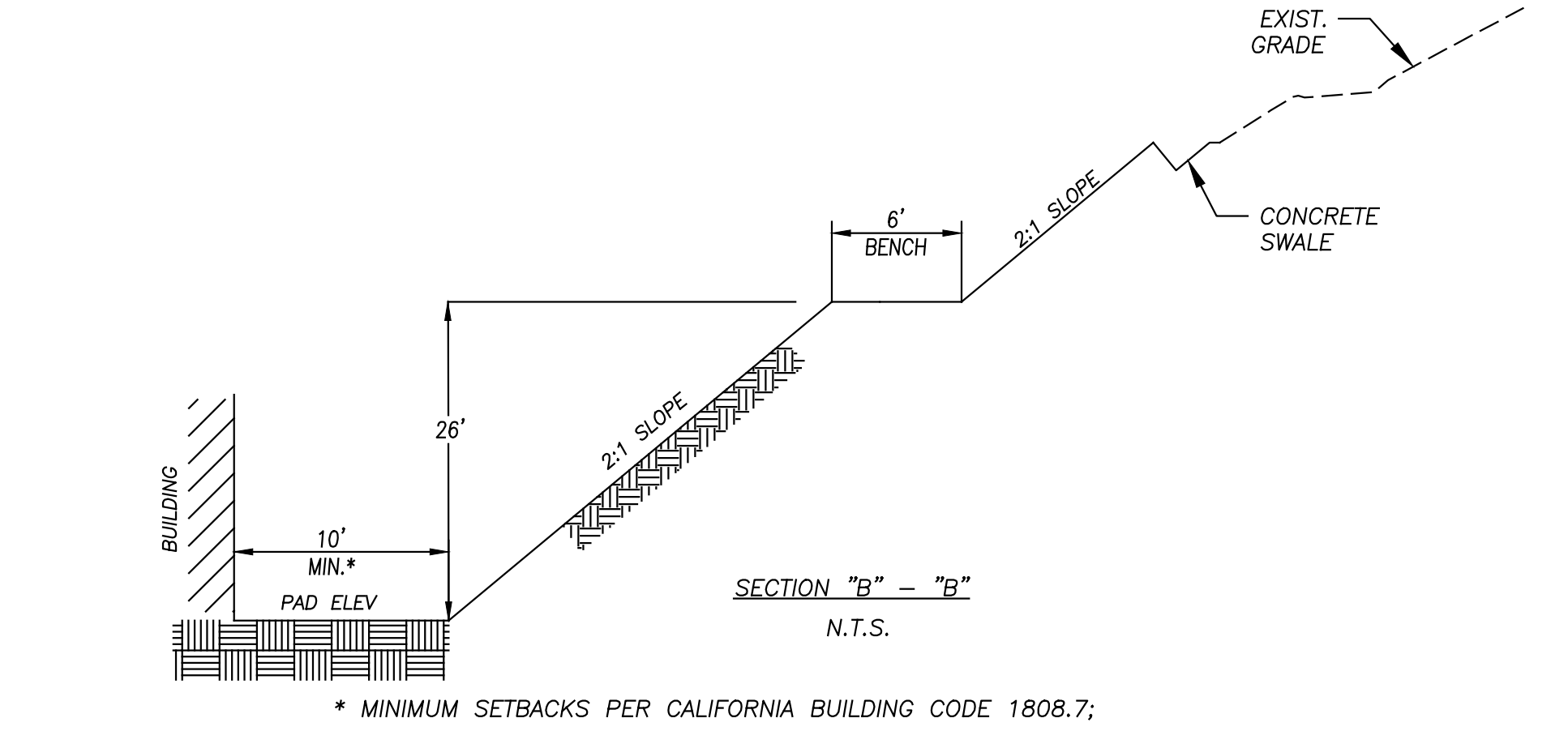
WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25634 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7900		

PROJECT DISTURBANCE:

GROSS SITE AREA: 32.80 AC
 NET SITE AREA (AREA OF DISTURBANCE): 15.43 AC
 TOTAL IMPERVIOUS SURFACE AREA: 10.03 AC

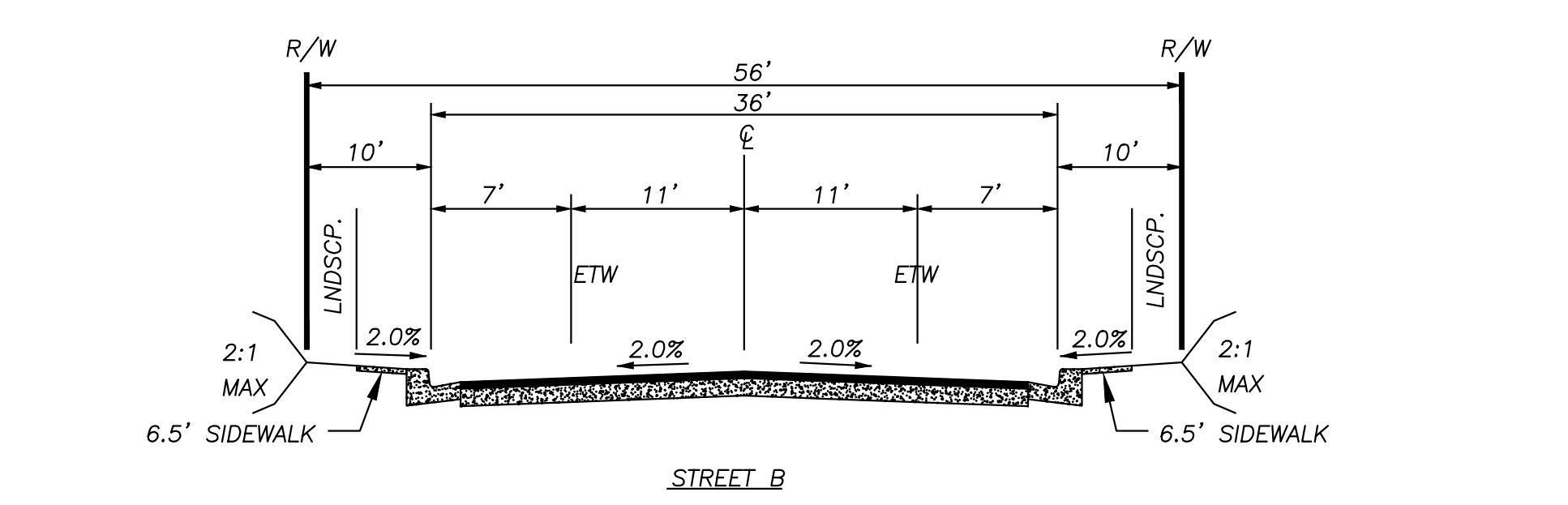


SECTION "A" - "A"
N.T.S.

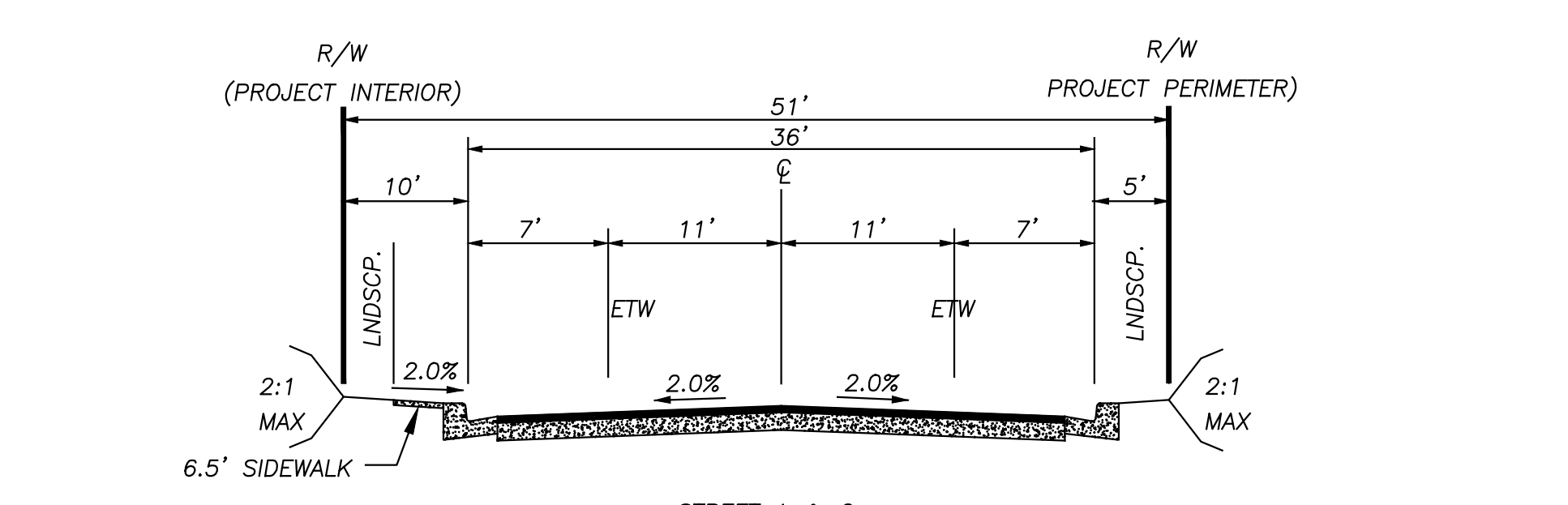


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N.T.S.

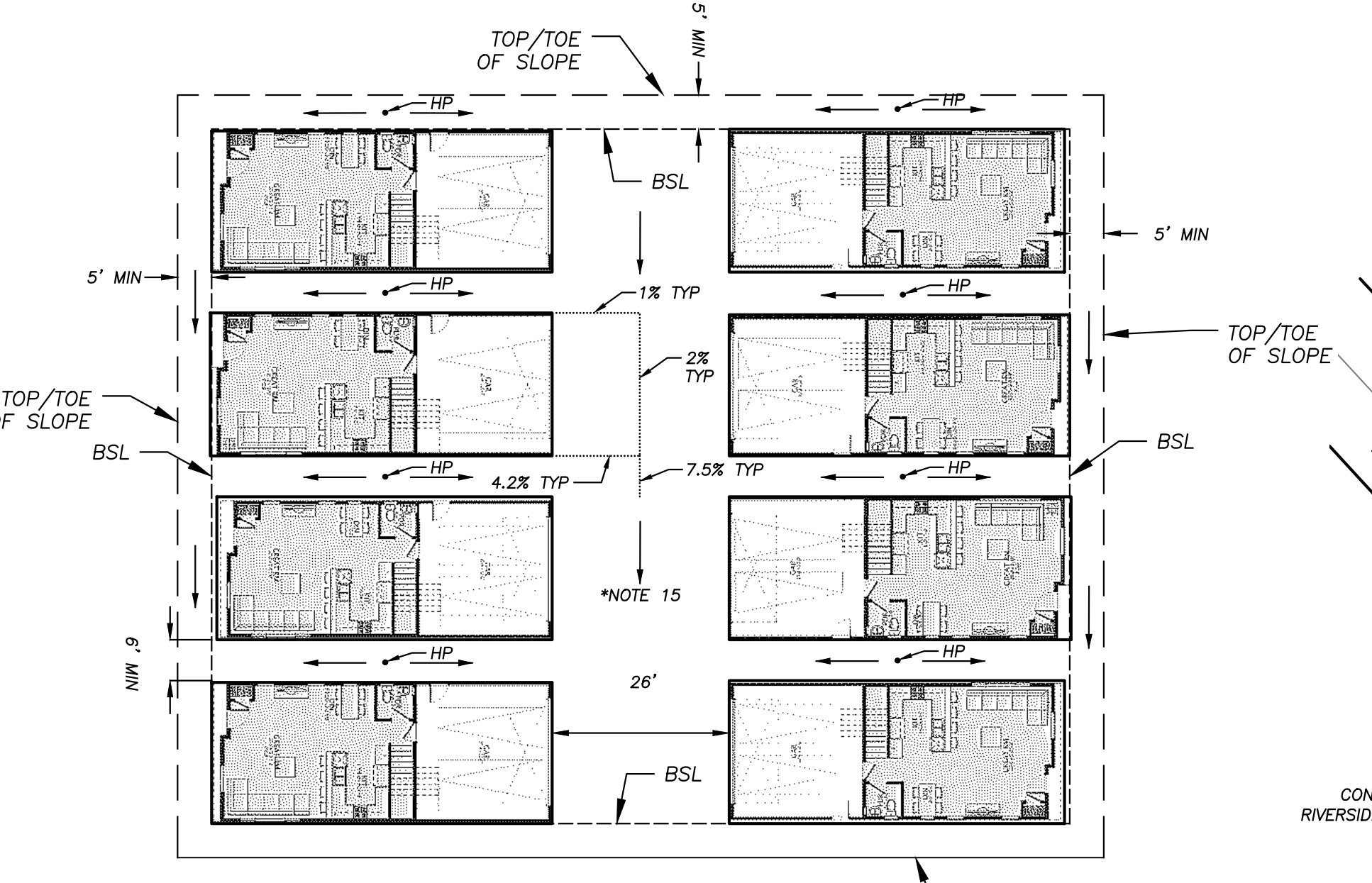
* MINIMUM SETBACKS PER CALIFORNIA BUILDING CODE 1808.7,
 - TOE OF SLOPE = AT LEAST THE SMALLER OF H/2 OR 15'
 - TOP OF SLOPE = AT LEAST THE SMALLER OF H/3 OR 40'



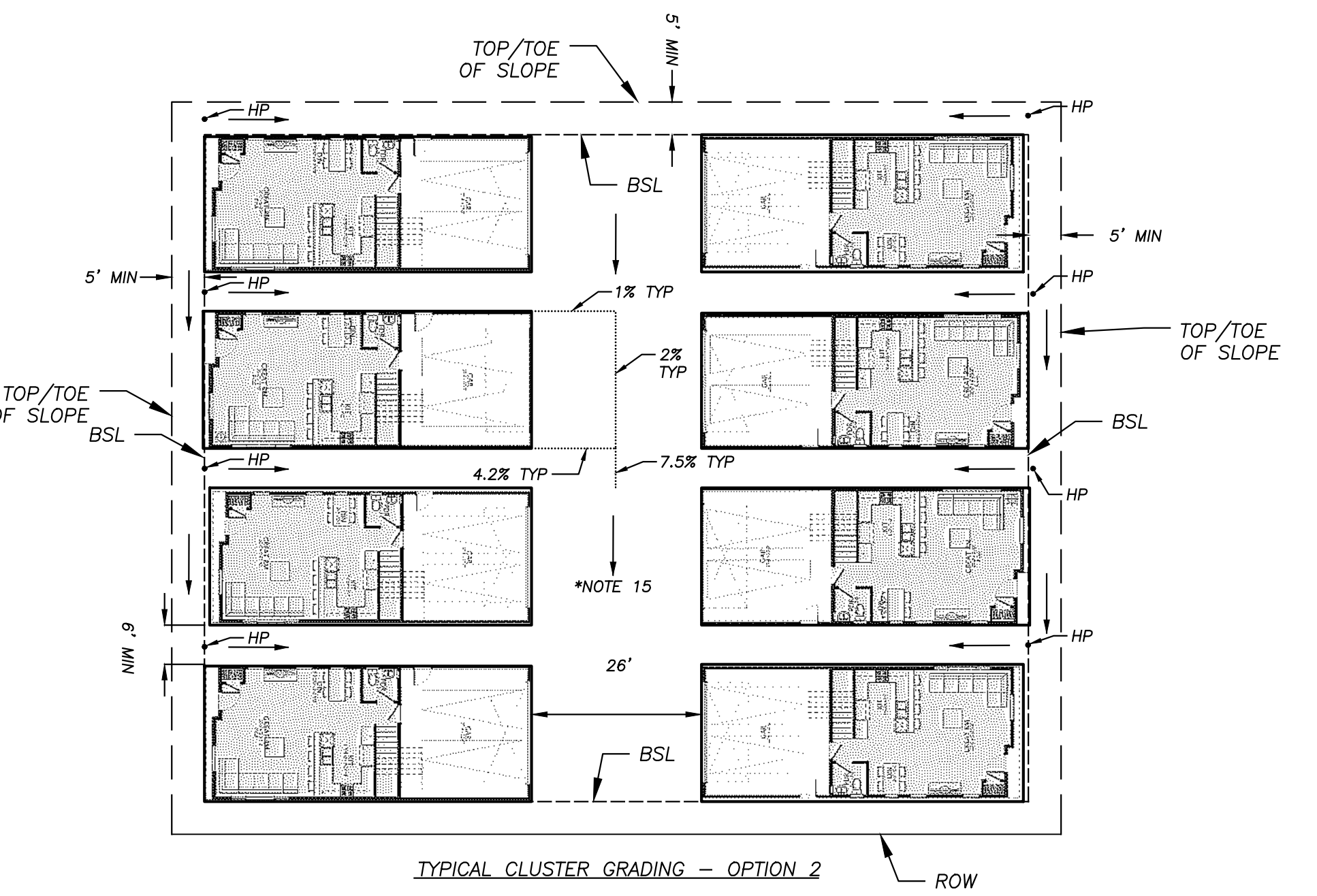
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CITY OF MORENO VALLEY STANDARD MVS1-107A-0
N.T.S.



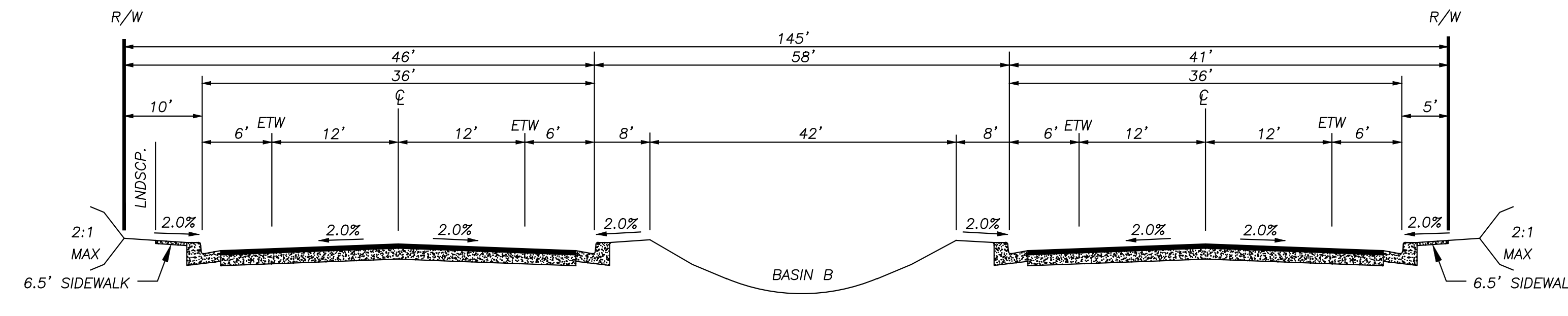
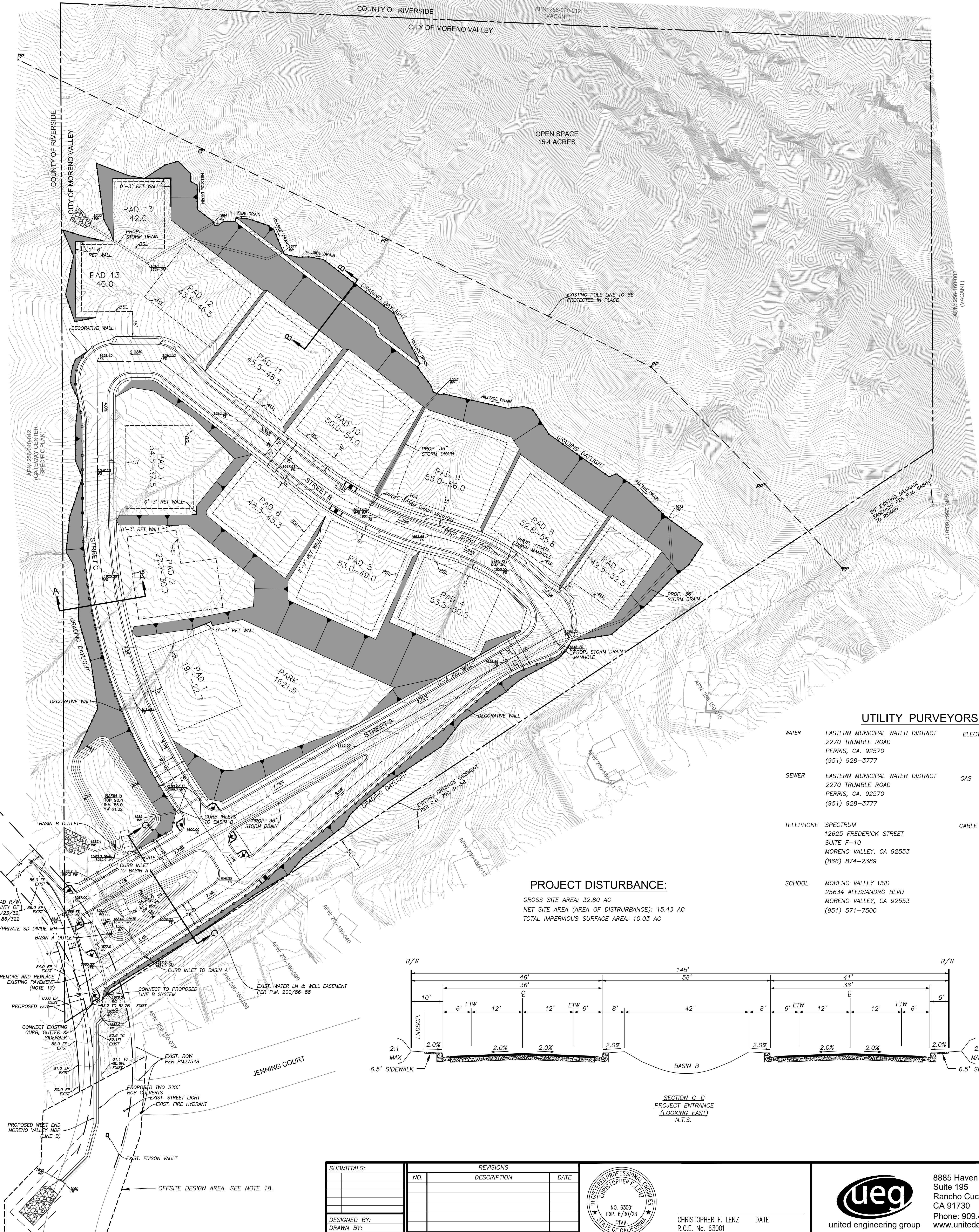
SECTION "A & C"
CITY OF MORENO VALLEY STANDARD MVS1-107A-0
(MODIFIED)
N.T.S.



TYPICAL CLUSTER GRADING - OPTION 1



TYPICAL CLUSTER GRADING - OPTION 2



SECTION C-C
PROJECT ENTRANCE
(LOOKING EAST)
N.T.S.

NO.	REVISIONS	DATE



DESIGNED BY: CHRISTOPHER F. LENZ DATE: _____
 DRAWN BY: R.O.C. No. 63001
 CHECKED BY: _____



8885 Haven Avenue
 Suite 195
 Rancho Cucamonga,
 CA 91730
 Phone: 909 466 9240
 www.unitedeng.com

PRELIMINARY GRADING PLAN	NOVEMBER 2022
GATEWAY HEIGHTS CONDITIONAL USE PERMIT PEN21-0066	SHEET 1 OF 1 PROJECT NUMBER CA-30182

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.
SITE PLAN (PEN21-0066)
 BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN
 UNITED ENGINEERING GROUP CA., INC NOVEMBER 2022

LEGAL DESCRIPTION:

THAT PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY; THENCE RUNNING SOUTH ALONG THE WEST LINE OF SAID SECTION 34, 23.50 CHAINS TO THE CORNER MONUMENT MARKING THE NORTHWEST CORNER OF THE LAND CONVEYED TO CECIL R. G. WEBBE TO CHARLES M. DEXTER BY DEED RECORDED IN BOOK 141, PAGE 398, OF DEEDS, SAN BERNARDINO COUNTY RECORDS;
 THENCE NORTH 56 DEGREES 31' EAST ALONG THE LINE OF LAND SO CONVEYED TO CHARLES M. DEXTER, 23.91 CHAINS TO THE NORTHEAST CORNER OF SAID LAND SO CONVEYED TO CHARLES M. DEXTER;
 THENCE NORTH ALONG THE CENTER LINE OF THE NORTHWEST QUARTER OF SAID SECTION 34, 10.40 CHAINS TO THE NORTH LINE OF SAID SECTION 34; THENCE WEST ALONG THE NORTH LINE OF SAID SECTION, 20 CHAINS TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY INTEREST OF THE COUNTY OF RIVERSIDE IN AND TO THAT PORTION LYING WITHIN MORTON ROAD.

ALSO EXCEPTING THEREFROM THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING SOUTHWESTERLY OF SAID MORTON ROAD.

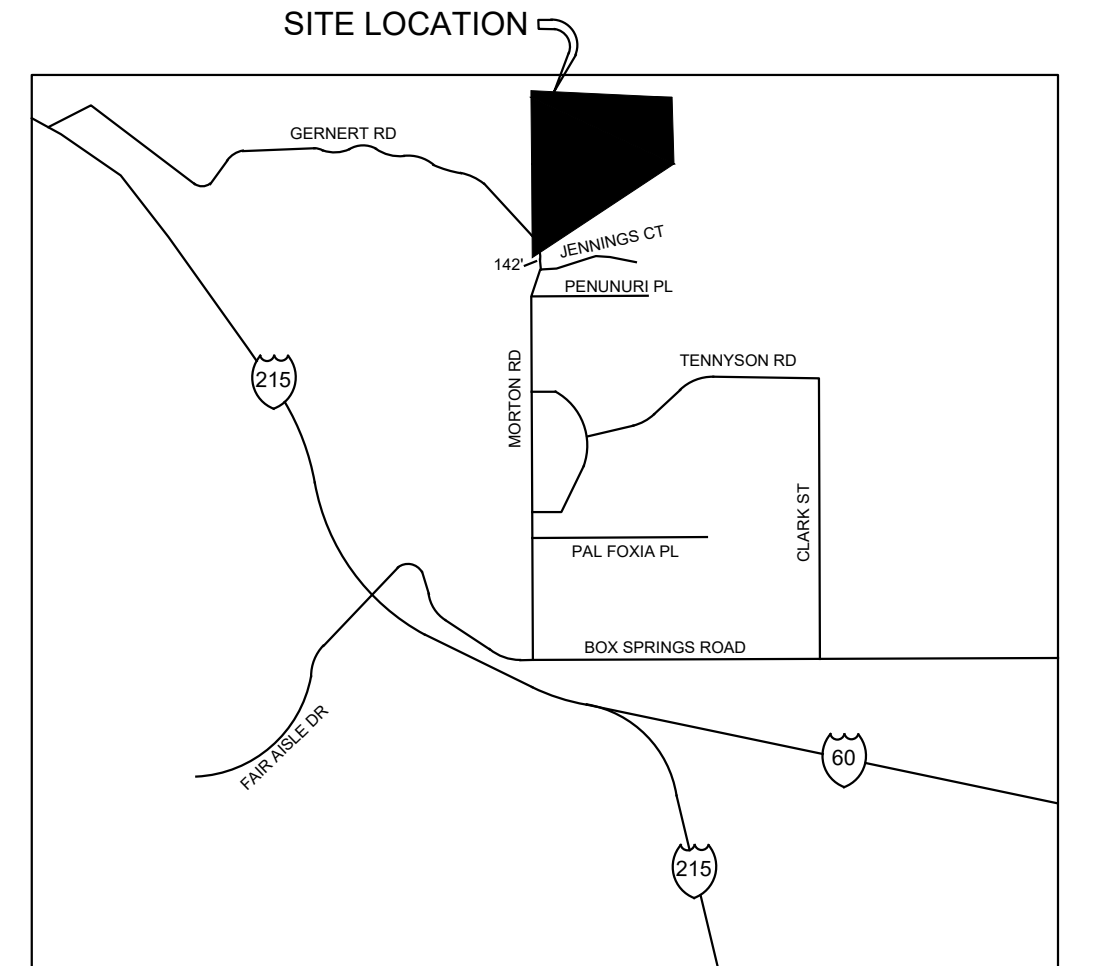
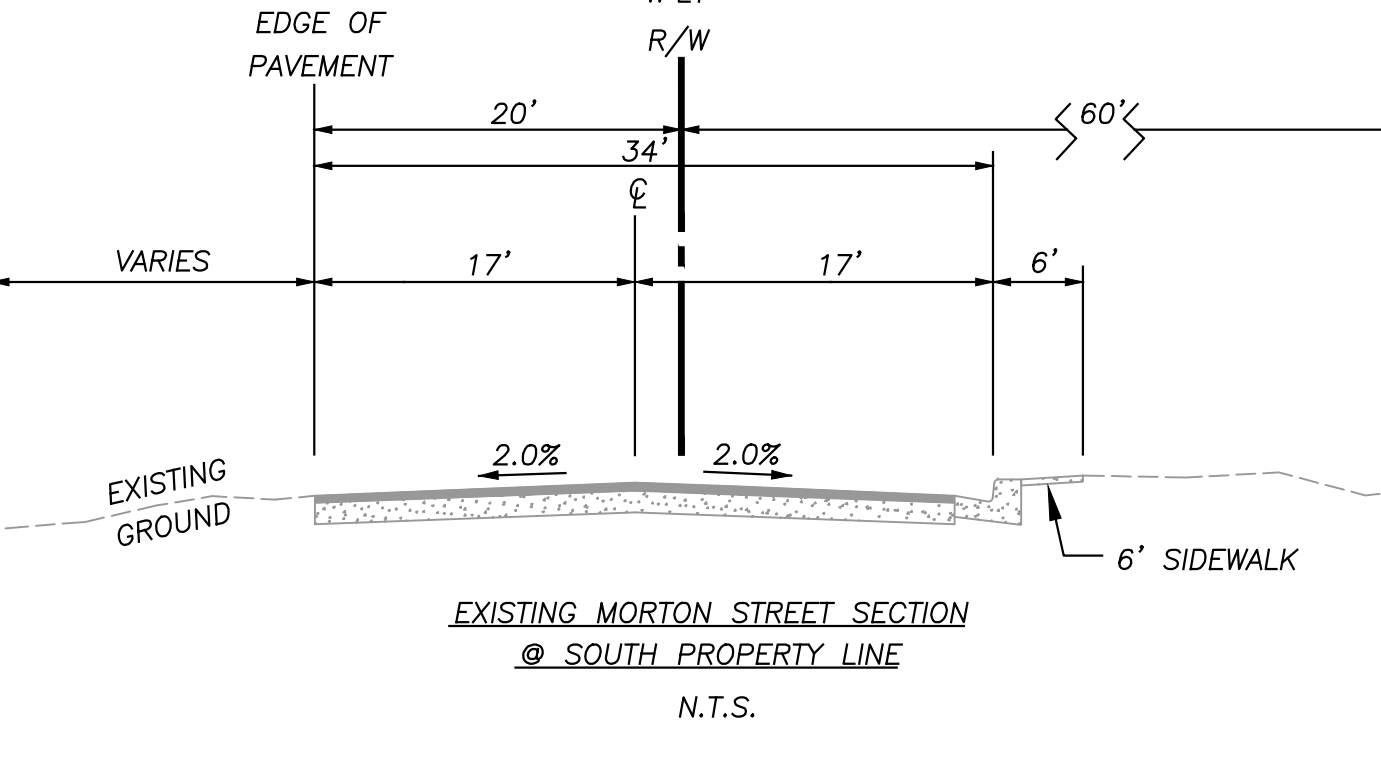
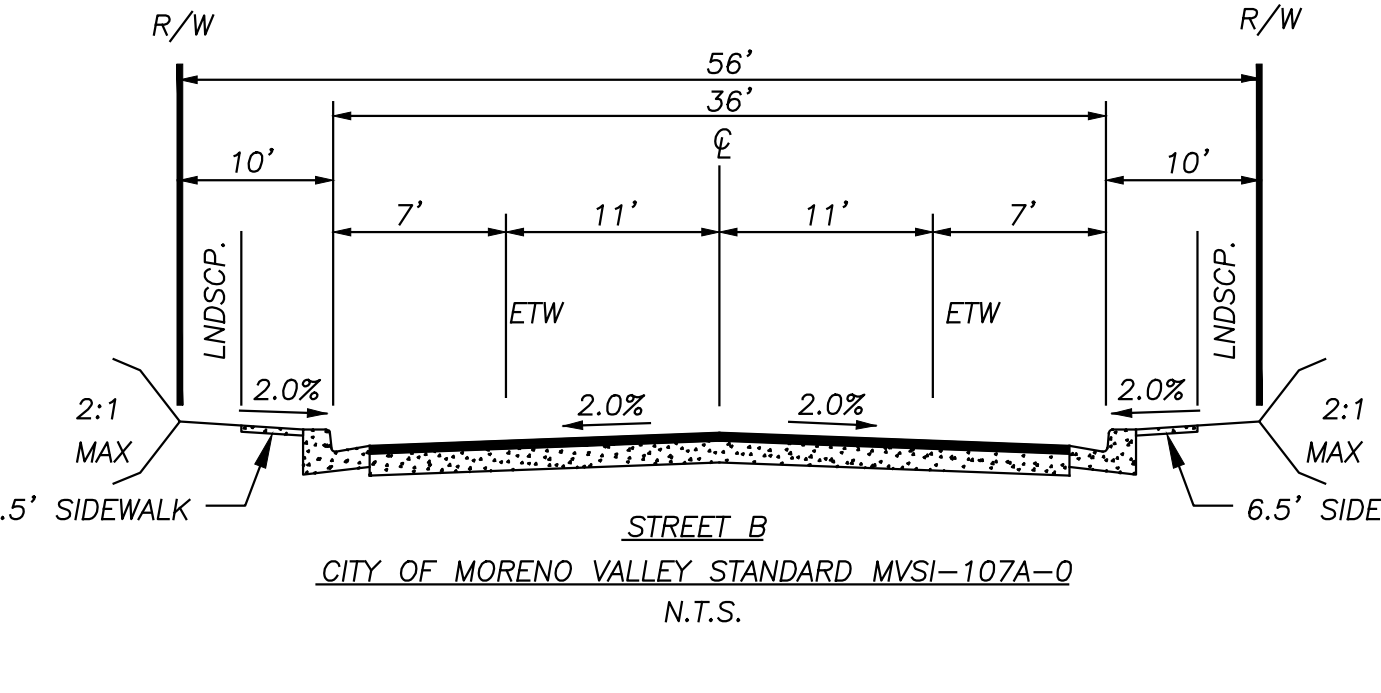
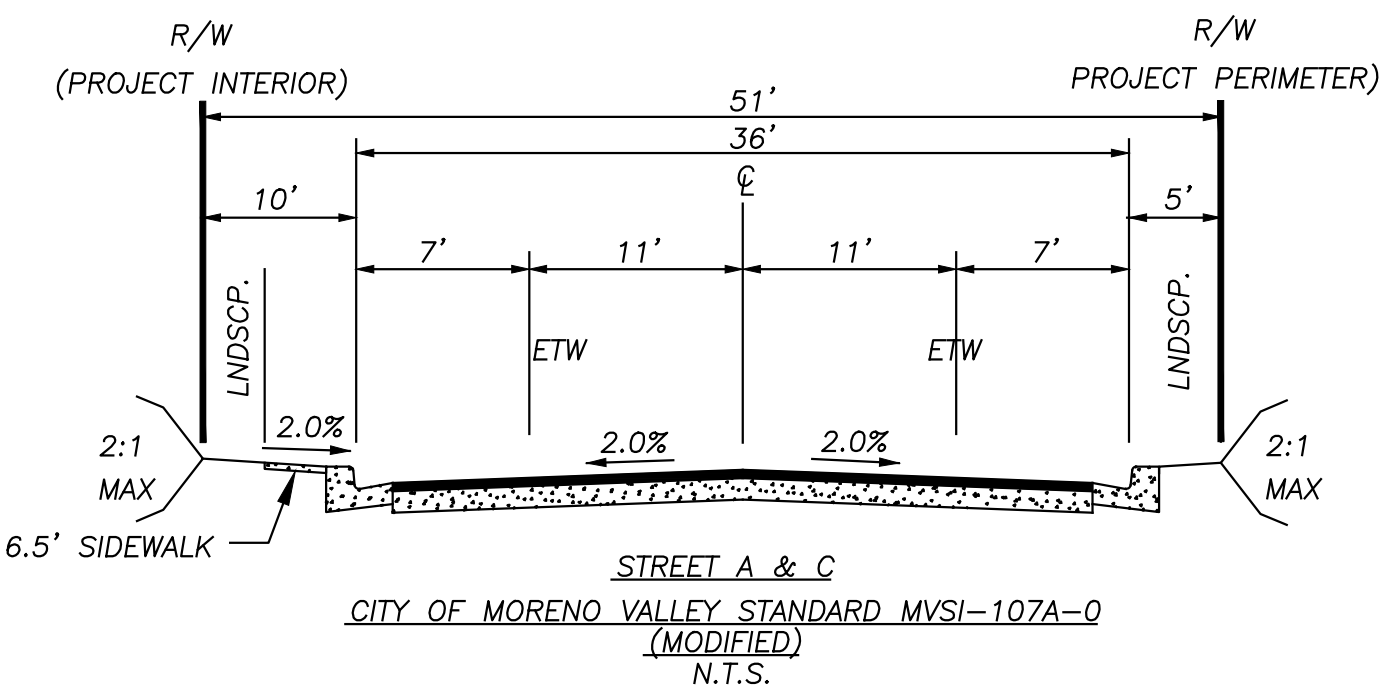
PARCEL NUMBER(S): 256-150-001

UTILITY PURVEYORS:

WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD FERRIS, CA. 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA. 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD FERRIS, CA. 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA. 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25834 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7500		

LEGEND

- FF FINISHED FLOOR
- FL FLOW LINE
- R/W RIGHT-OF-WAY
- BSL BUILDING SETBACK LINE
- FSL FIRE SEPERATION LINE
- PROPOSED SEWER LINE
- PROPOSED WATER LINE
- EXISTING SEWER LINE
- EXISTING WATER LINE
- DEVELOPMENT LIMITS
- PROJECT BOUNDARY
- CENTERLINE
- EXISTING DIRT ROAD
- PP POWER POLE
- OVERHEAD POWER LINE
- FUEL MODIFICATION ZONE
- DECORATIVE WALL



GENERAL NOTES:

- APN: 256-150-001
- TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL - 1 FT.
- THE LAND DOES NOT LIE WITHIN AN ALOQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALOQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP. PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
- THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
- THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
- THIS AREA IS NOT WITHIN FAULT ZONE.
- BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
- PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
- HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS AND FUEL MODIFICATION AREAS.
- PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
- ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
- TO THE BEST OF OUR KNOWLEDGE, MORTON ROAD NORTHERLY OF JENNINGS COURT HAS NOT BEEN VACATED FROM THE CURVE ALIGNMENT THAT IS RECORDED ON PM27548.
- PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
- REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.

SITE DATA

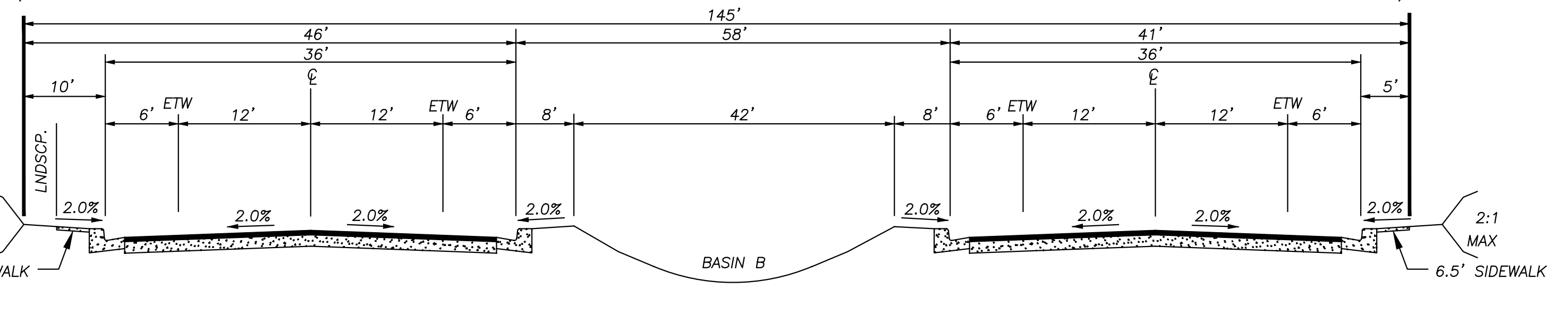
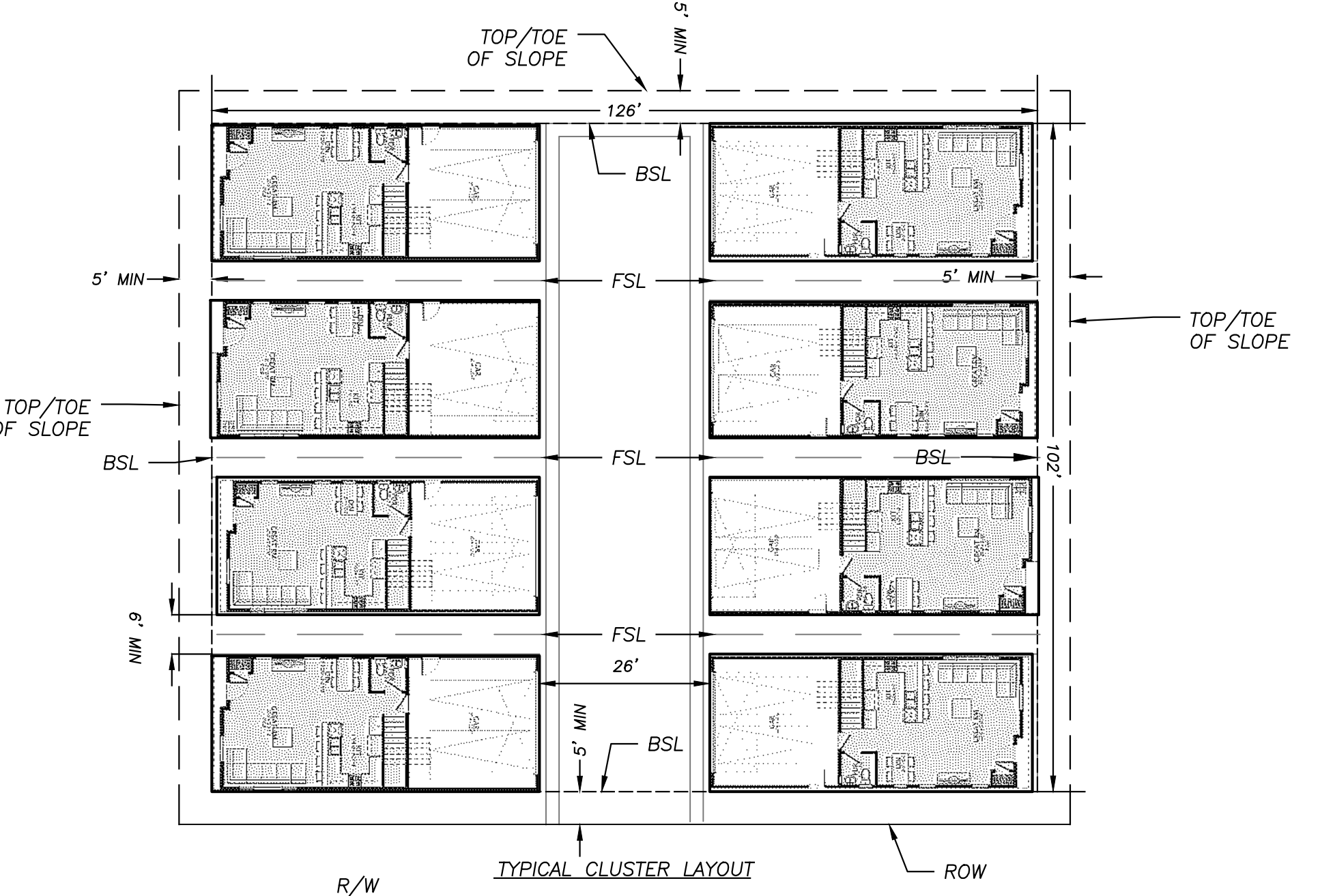
TOTAL GROSS AREA.....	32.56 ACRES
TOTAL NET AREA.....	32.56 ACRES
PROPOSED R10 ZONE.....	16.59 ACRES
PROPOSED OPEN SPACE ZONE.....	15.97 ACRES
DEVELOPMENT AREA.....	16.59 ACRES
UNITS 1 - 108.....	2,100 S.F./EACH (ALL 2 STORY)
PARKING SPACES REQ'D.....	216 (ENCLOSED GARAGE)
PROVIDED.....	216 (ENCLOSED GARAGE)
PARK AREA.....	0.89 ACRES
BASIN A.....	12,131.24 S.F.
BASIN B.....	13,855.37 S.F.
STREET A, B, & C.....	2,447.60 L.F.
BUILDING SETBACKS.....	5' TO RIGHT OF WAY
MIN. BUILDING SEPARATION.....	6'
SIDE & REAR SETBACKS.....	5' MINIMUM TO TOP/TOE OF SLOPE (TOE OF SLOPE = H/2) (TOP OF SLOPE = H/3)

PROJECT LAND USE

EXISTING LAND USE.....VACANT
 PROPOSED LAND USE.....RESIDENTIAL
 EXISTING ZONING.....R2 AND HR
 PROPOSED ZONING.....R10 AND OS

SURROUNDING LAND USE

NORTH: HILLSIDE RESIDENTIAL (HR) & CONSERVATION (COUNTY OF RIVERSIDE)
 SOUTH: RESIDENTIAL MAX SDU/ACRE (R5)
 EAST: HILLSIDE RESIDENTIAL (HR)
 WEST: GATEWAY CENTER SPECIFIC PLAN (COUNTY OF RIVERSIDE)



DEVELOPER:

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ONTARIO, CA 91761
(909) 456-1480 OFFICE
(909) 223-3302 MOBILE
jason.ackerman@ackermanlawpc.com

OWNER/APPLICANT:

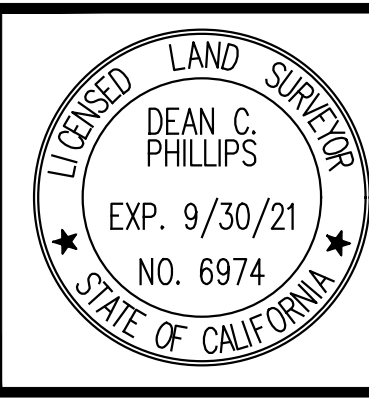
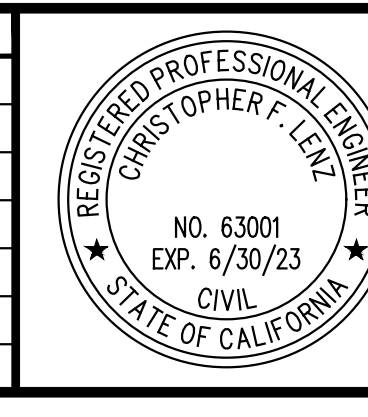
SHIZAO ZHENG
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NINGBO, CHINA 315-016
(626) 866-1470

ENGINEER/PLAN PREPARER

UNITED ENGINEERING GROUP CA, INC
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(909) 292-6677 MOBILE
bcooper@unitedeng.com

NO.	REVISIONS	DATE

DESIGNED BY: CHRISTOPHER F. LENZ DATE: _____
 DRAWN BY: R.C.E. No. 63001
 CHECKED BY: _____



DEAN C. PHILLIPS DATE: _____
 L.S. No. 6974
 dphillips@unitedeng.com



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Suite 195
Rancho Cucamonga, CA 91730
Phone: 909 466 9240
www.unitedeng.com

SITE PLAN	NOVEMBER 2022
GATEWAY HEIGHTS CONDITIONAL USE PERMIT PEN21-0066	SHEET 1 OF 1
	PROJECT NUMBER CA-30182

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



September 21, 2018

Project No. G18-1648-20

Shizao Zheng
1378 West Zhongshan Road
Ningbo City, Zhejiang Province
China

Subject: *Preliminary Infiltration Testing Investigation for the Proposed Single-Family Residential Development, Tentative Tract Map No. 37557, City of Moreno Valley, Riverside County, California.*

Reference: *Sikand Engineering, Conceptual Grading Plan Tract No. 37557, City of Moreno Valley, County of Riverside, State of California.*

1.0 INTRODUCTION

LGC Geo-Environmental, Inc. (LGC) is pleased to present this preliminary infiltration testing investigation for the proposed single-family residential development, Tentative Tract Map No. 37557, city of Moreno Valley, Riverside County, California. The purpose of our study was to determine the vertical infiltration rates and physical characteristics of the subsurface soils in selected areas of proposed onsite storm water infiltration BMP devices within specific portions of the subject property.

2.0 PROPERTY LOCATIONS AND DESCRIPTION

The subject site proposed to be developed is irregularly shaped at the base of a mountain. The site is located north of Jennings Court and east of Morton Road in the City of Moreno Valley, Riverside County, California.

Throughout the site there are shrubs, cactuses, annual weeds, trees, and boulders. Scattered trash and debris exist on the site.

The topography of the site is undulating with approximately four drainage courses through the site from the northeast. Elevations range from approximately 2,040 feet above mean sea level (msl) in the northeastern portion of the site to approximately 1,588 feet msl in the western portion of the site.

3.0 PROPOSED CONSTRUCTION

Based on the referenced conceptual grading plan tract no. 37557, the proposed 32.79-acre development will consist of single-family residences with associated roadways, hardscaping, landscaping and an infiltration device. As per discussion with Leslie Frazier of Sikand Engineering, one infiltration basin is proposed at depths of approximately 10 feet to 12 feet.

4.0 SUBSURFACE EXPLORATION: INFILTRATION TESTING

4.1 Subsurface Exploration

Subsurface exploration of the subject site consisted of two (2) infiltration test trench locations utilizing a backhoe, on September 4, 2018, within the proposed onsite storm water infiltration BMP locations, at depths ranging from 5 to 10.5 feet below existing grade. Earth materials encountered within the locations were classified in general accordance with the visual manual procedures of the Unified Soil Classification System (USCS). Logs of the infiltration test trenches are presented in Appendix A, and their approximate locations are depicted on the Infiltration Test Location Map (Plate 1).

Prior to the subsurface exploration work, an underground utilities clearance was obtained from Underground Service Alert of Southern California.

4.2 Infiltration Testing

On September 4, 2018, one (1) infiltration test was conducted within the proposed area of the infiltration device. The infiltration test trenches were labeled IT-1 and IT-2 and are depicted on the Infiltration Test Location Map (Plate 1). The tests were performed as per the referenced Riverside Technical Guidance Manual for Onsite Wastewater Treatment Systems.

Due to the very hard nature of the soil and bedrock, only the 10.5-foot-deep test trench was dug to the required depth. The 5-foot test trench was inadequate for testing. An 8-inch diameter, 12-inch long, plastic liner was placed within a 6-inch deep excavated test hole. At least 6 inches of clean water was filled within the test hole. From a fixed test point, the drop-in water level, in inches, and the amount of water used was measured and recorded at intervals over a period of at least 6 readings or until the rate for two consecutive readings was within a five percent variation. The field infiltration rates were reduced utilizing a reduction factor per the Porchet Method. The test results are presented in Table 1. The infiltration test data sheets are presented in Appendix A.

5.0 FINDINGS

5.1 Earth Materials

Based on our review of the data from the in progress geotechnical investigation and current exploration of the earth materials underlying the proposed onsite storm water infiltration BMP area, the materials encountered to the depths explored include undocumented artificial fill, older alluvial fan deposits, and granitic bedrock (tonalite). A description of the earth material soils encountered is described below:

Artificial Fill, Undocumented (Afu): During our subsurface exploration, artificial fill (undocumented) was encountered down to depths ranging from approximately 2.0 feet to 5.5 feet. The artificial fill generally consists of silty sand and clayey silt and is various shades of brown, red and black; very fine to medium grained with some coarse grains; coarse and very coarse rock fragments; dry to damp; medium dense; blocky; contains some pores; root hairs; oxidation staining and traces of concrete.

Older Alluvial Fan Deposits (Qoa): Older alluvial fan deposits encountered on the site during our subsurface exploration, was observed to be at approximately 2.0 feet to 5.5 feet deep, below the undocumented artificial fill. The alluvial fan deposits generally consist of silty sand and is characterized as various shades of brown, green, gray, and red; dry; very dense; very fine to medium grained with coarse grains; pinhole pores; root hairs; and has oxidation staining.

Bedrock: Bonzal Tonalite (Kqdi) – Bedrock of the Peninsular Ranges was present below older alluvial fan deposits in trench IT-2 at a depth of about 6.5 feet. This bedrock consists of quartz diorite and is massive; grayish white with black minerals; dry; hard to very hard; and has oxidation staining.

5.2 Groundwater

Groundwater was not encountered during the infiltration testing to depths of up to 10.5 feet. A review of the California Department of Water Resources, Water Data Library 2018 online database indicates groundwater approximately four miles away from the general site area is about 72.9 feet below the existing ground surface at an elevation of approximately 1,638 above mean sea level (Well ID: Station 335628N1171932W001).

5.3 Infiltration Testing Results

The shallow infiltration testing rates for design considerations for each of proposed drainage device areas which were tested are presented in the table below.

Infiltration Design Rates

TEST NO.	TEST DEPTH (Feet)	FIELD PERCOLATION RATE (INCHES/HOUR)	SOIL DESCRIPTION (USCS)
IT-2	10.5	0	Tonalite

6.0 CONCLUSIONS AND RECOMMENDATIONS

Shallow infiltration testing for the proposed drainage devices indicated a design rate of 0.0 inches/hour, after applying reduction factors shown in Table 1 above, per the Porchet Method, at depths of approximately ten and a half (10.5) feet below the existing ground surface as presented in the above infiltration design rate table, Section 5.3. The rate is **0.0 inches/hour** represented by testing from infiltration test trench IT-2.

Based on the failing design rate and nature of the onsite material, we recommend the proposed infiltration basin be relocated or using an alternative infiltration design.

7.0 PLAN REVIEWS AND CONSTRUCTION SERVICES

This report was prepared for the exclusive use of **Shizao Zheng** to assist the project civil engineer in the design of the proposed infiltration systems for the proposed development. It is recommended that LGC be engaged to review infiltration device plans, grading plans, foundation plans and the final infiltration design drawings and specifications prior to construction. This is to document that the recommendations contained in this report were properly interpreted and incorporated into the project plans and specifications from a geotechnical standpoint. Plans should be forwarded to the project geotechnical engineer and/or engineering geologist for LGC for review and comments, as deemed necessary. LGC's review of infiltration device plans, grading plans, foundation plans and the final infiltration design drawings and specifications may indicate that additional subsurface exploration, laboratory testing and analysis should be performed to address areas of concern. If LGC is not accorded the opportunity to review these documents, we can not take responsibility for misinterpretation of our recommendations.

If the project plans change significantly (e.g., location and type of infiltration devices), LGC should be retained to review our original design recommendations and applicability to the revised construction. If conditions are encountered during construction that appears to be different from those indicated in this report, this office should be notified immediately. Design and construction revisions may be required.

The preliminary conclusions and recommendations provided in this report are based on review of previous geotechnical reports, infiltration testing, geologic field mapping, and geotechnical/geologic analyses to date. A representative of LGC should observe the interpolated subsurface conditions in the field during construction

We recommend that LGC be retained to provide geotechnical engineering services during future grading, infiltration device excavations, installation of infiltration materials, backfill of infiltration devices, or when an unusual soil condition is encountered at the site. This is to document compliance with the design, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

8.0 INVESTIGATION LIMITATIONS

This report is based upon information provided by the client and the project civil engineer, a limited number of subsurface excavations, field observations and percolation/infiltration tests to which we applied various methods of analysis and interpretation. The materials encountered and tested in the field on the project site are believed representative of the project area, and the conclusions and recommendations contained herein are presented on that basis. However, soil materials can vary in characteristics between points of exploration, both laterally and vertically, and those variations could affect the conclusions, recommendations, and performance of the proposed storm water infiltration device BMP systems. Fluctuations in

the level of groundwater may occur due to variations in rainfall, irrigation, and the other factors not in evidence at the time measurements were made. If this occurs, the changed conditions must be evaluated by the project geotechnical engineer and engineering geologist and design(s) adjusted as required or alternate design(s) recommended.

This report is issued with the understanding that it is the responsibility of the owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of the project engineer and incorporated into the plans, and the necessary steps are taken to see that the contractor and/or subcontractor properly implements the recommendations in the field.

The conclusions and opinions contained in this report are based on the results of the described geotechnical evaluations and represent our professional judgment. The findings, conclusions and recommendations contained in this report are to be considered tentative only and subject to confirmation by the undersigned during the construction process. Without this confirmation, this report is to be considered incomplete and LGC or the undersigned professionals assume no responsibility for its use.

The conclusions and opinions contained in this report are valid up to a period of 2 years from the date of this report. Changes in the conditions of a property can and do occur with the passage of time, whether they be because of natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate codes or standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, if any of the above mentioned situations occur, an update of this report should be completed.

This report has not been prepared for use by parties or projects other than those named or designed above. It may not contain sufficient information for other parties or other purposes.

The opportunity to be of service is appreciated. Should you have any questions regarding the content of this report, or should you require additional information, please do not hesitate to contact this office at your earliest convenience. Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by engineers and geologists practicing in this or other localities. The contents of this report are professional opinions and as such, are not to be considered a guarantee or warranty.

The opportunity to be of service is appreciated. Should you have any questions regarding the content of this report, or should you require additional information, please do not hesitate to contact this office at your earliest convenience.

Respectfully submitted,

LGC Geo-Environmental, Inc.


Robert L. Gregorek, II CEG 1257
Certified Engineering Geologist



AJR/RLG

Distribution: (4) Addressee

Attachments: Figure 1 – Site Location Map (*Rear of Text*)
Appendix A – Infiltration Trench Logs (*Rear of Text*)
Appendix B – Infiltration Test Results (*Rear of Text*)
Plate 1 – Infiltration Test Location Map (*Pocket Enclosure*)

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Approx. Site Location

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

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FIGURE 1
SITE LOCATION MAP

Project Name	SIKAND - MORENO VALLEY
Project No.	G18-1648-20
Geol./ Eng.	RLG
Scale	NOT TO SCALE
Date	SEPTEMBER 2018

APPENDIX A
INFILTRATION TRENCH LOGS

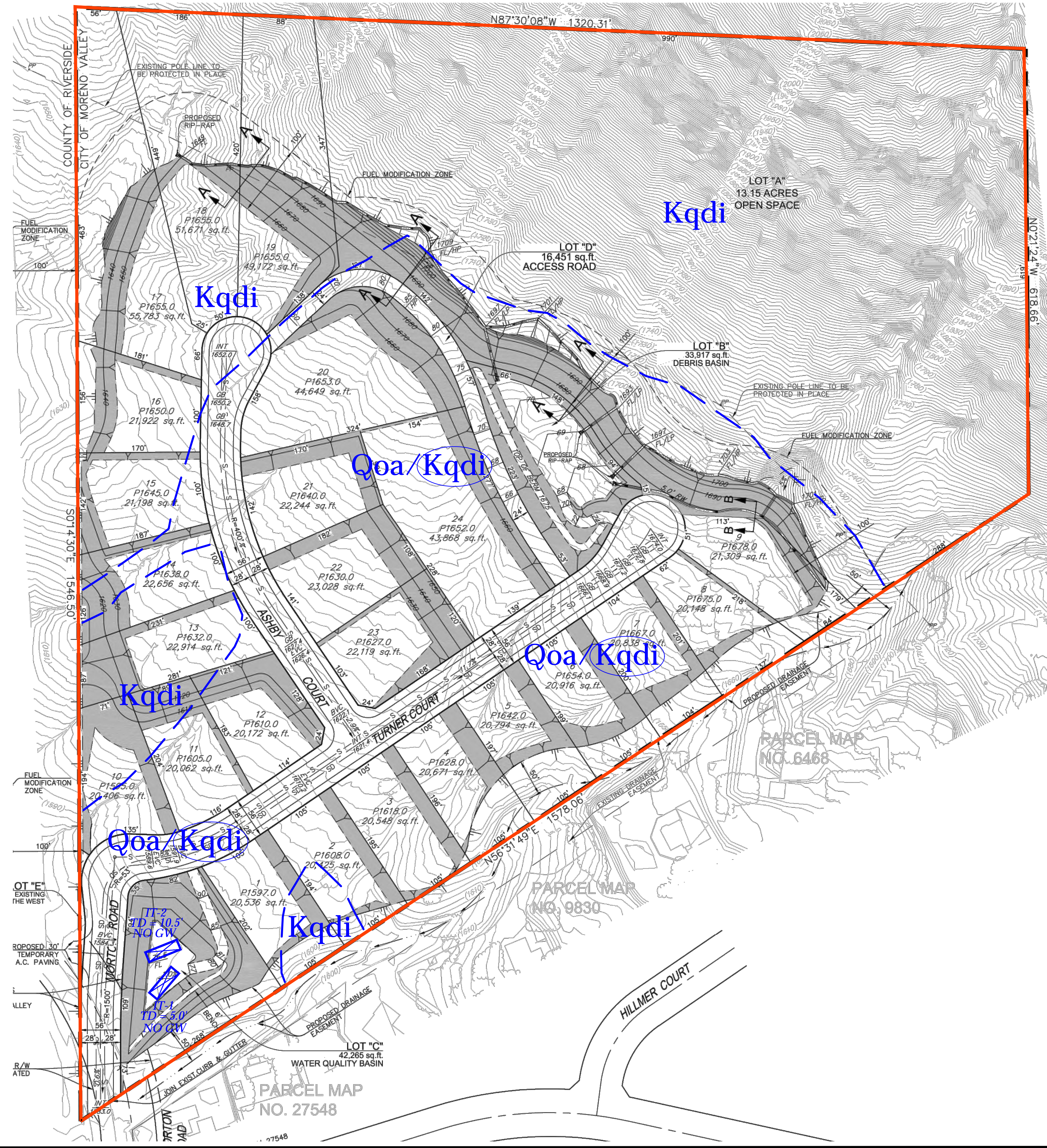


Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH IT-1			
Project Number: G18-1648-20		Elevation: 1594'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit				
0.0'-2.0'	A	ARTIFICIAL FILL, UNDOCUMENTED: Silty SAND/Clayey SILT; dark reddish brown to blackish brown, dry to damp, medium dense, very fine to medium grained with some coarse to very coarse grains, coarse to very coarse rock fragments, some pores, root hairs, blocky, oxidation staining	Afu	SM/ML			
2.0'-5.0'	B	OLDER ALLUVIAL FAN DEPOSITS: Silty SAND; greenish gray and reddish brown, dry, very dense, very fine to medium grained, with some coarse grains, pinhole pores, root hairs, stopped digging at 5.0 feet due to practical refusal	Qoa	SM			
GRAPHICAL REPRESENTATION: NORTH WALL				SURFACE SLOPE: LEVEL	TREND: N19E		
				TOTAL DEPTH= 5.0 FEET NO GROUNDWATER ENCOUNTERED			

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH IT-2			
Project Number: G18-1648-20		Elevation: 1592'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit				
0.0'-5.5'	A	ARTIFICIAL FILL, UNDOCUMENTED: Silty SAND/clayey SILT; dark reddish brown to blackish brown, dry to damp, medium dense, very fine to medium grained with some coarse to very coarse grains, coarse to very coarse rock fragments, some pores, root hairs, blocky, pieces of concrete	Afu	SM/ML			
5.5'-6.5'	B	OLDER ALLUVIAL FAN DEPOSITS: Silty SAND; greenish gray and reddish brown, dry, very dense, very fine to medium grained, with some coarse grains, pinhole pores, root hairs, oxidation staining	Qoa	SM			
6.5'-10.5'	C	BEDROCK (TONALITE): Quartz diorite, grayish white, dry, hard to very hard, oxidation staining @10.0'; some moderately weathered sections at one bottom of trench	Kqdi				
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'		SURFACE SLOPE: LEVEL		
				TOTAL DEPTH=10.5 FEET NO GROUNDWATER ENCOUNTERED			
				TREND: N65E			

APPENDIX B
INFILTRATION TEST RESULTS

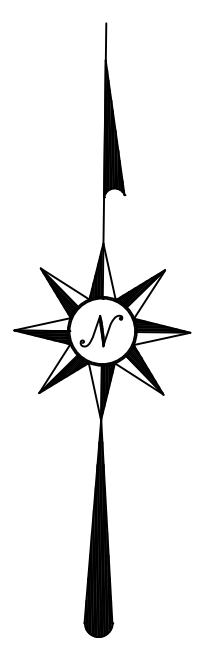
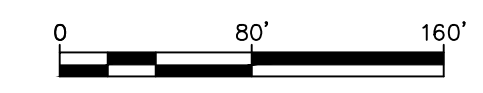




LEGEND
(Locations are Approximate)

- Geologic Earth Units**
- Qoa - Older Alluvial Fan Deposits
 - Qdi - Bedrock: Bonzal Tonalite (circled where buried)

- Symbols**
- - Limits of This Report
 - - - - Approximate Geologic Contact
 - IT-2
TD=10.5'
NO GW
 - Infiltration Trench Location



Logical Geotechnical Consultants
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Robert L. Gregorek, II
 Engineering Geologist

INFILTRATION TEST LOCATION MAP
 Tentative Tract Map No. 37557
 City of Moreno Valley, Riverside County, California

Name:	Tentative Tract Map No. 37557
Project No.:	G18-1648-20
Client:	Shizao Zheng
Scale:	1" = 80'
Date:	September 2018
Reference:	Sikand Engineering, Conceptual Grading Plan, Sheet 2 of 2, Dated June 13, 2018
Plate No.:	1 OF 1



LGC GEO-ENVIRONMENTAL, INC.

PRELIMINARY GEOTECHNICAL INVESTIGATION FOR THE PROPOSED SINGLE-FAMILY RESIDENTIAL DEVELOPMENT, TENTATIVE TRACT MAP NO. 37557, CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA.

***Dated: September 22, 2018
Project No. G18-1648-10***

***Prepared For:
Shizao Zheng
1378 West Zhorgshan Road
Ningbo City, Zhejiang Province
China***

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LGC GEO-ENVIRONMENTAL, INC.
 GEOTECHNICAL * ENVIRONMENTAL * MATERIALS TESTING * SWPPP

September 22, 2018

Project No. G18-1648-10

Shizao Zheng

1378 West Zhorgshan Road
 Ningbo City, Zhejiang Province
 China

Subject: Preliminary Geotechnical Investigation for the Proposed Single-Family Residential Development, Tentative Tract Map No. 37557, City of Moreno Valley, Riverside County, California.

LGC Geo-Environmental, Inc. (LGC) is pleased to submit herewith our preliminary geotechnical investigation report for the proposed single-family residential development, Tentative Tract Map No. 37557, City of Moreno Valley, Riverside County, California.

This report presents the results of our review of published geologic/geotechnical reports, maps, and aerial photographs relative to the area that includes the site; our field exploration, geologic mapping, and laboratory testing; and geotechnical and geologic judgment, opinions, conclusions and preliminary recommendations associated with the proposed residential development.

Based on the results of the scope of our work and our review of the conceptual grading plan tract map, it is our opinion that the subject site is suitable for the proposed residential development, provided that the recommendations presented herein are incorporated into the design and implemented during grading and construction. LGC should review the final grading plans, as well as any foundation/structural plans when those become available, and revise the recommendations presented herein, if necessary.

LGC is pleased to have been retained to be of service to you during the design stages of this project. Should you have any questions regarding the contents of this report or should you require additional information, please do not hesitate to contact us.

Respectfully submitted,

LGC Geo-Environmental, Inc.

Robert L. Gregorek II, CEG 1257
 Certified Engineering Geologist



John P. Nielsen, GE 641
 Geotechnical Engineer



AJR/RLG/JPN

Distribution: (4) Addressee

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1.0 INTRODUCTION

This report presents the results of LGC Geo-Environmental, Inc.'s (LGC) geotechnical investigation for the proposed single-family residential development, Conceptual Grading Plan Tract Map No. 37557, City of Moreno Valley, Riverside County, California. The purpose of this geotechnical investigation was to evaluate the soil engineering properties of the surface and subsurface soil conditions on the site, and to provide geotechnical recommendations with respect to grading, construction, foundation design and other relevant geotechnical aspects related to the proposed residential development. The referenced conceptual grading plan tract map which was provided to LGC, was utilized as the base map for our Geotechnical Map (Plate 1) of the site.

Our scope of services included:

- A review of available published geologic/geotechnical literature, geologic maps, and aerial photographs pertinent to the site (Appendix A).
- Geologic mapping of the site.
- Subsurface exploration consisting of the excavating, sampling, and logging of ten (10) exploratory trenches, TR-1 through TR-8 and IT-1 through IT-2, to depths ranging from approximately 3.0 to 13.5 feet below the existing ground surface. All of the trenches were excavated using a backhoe. The trenches were excavated to evaluate the general characteristics of the subsurface geologic/geotechnical conditions on the project site, including classification of site soil, determination of depth to groundwater (if present), and to obtain representative soil samples.
- Laboratory testing of representative soil specimens collected during our subsurface exploration (Appendix C).
- Geotechnical engineering and geologic analyses of the data with respect to the proposed single-family development.
- Preparation of General Earthwork and Grading Specifications (Appendix D).
- Preparation of this report presenting our findings, conclusions and preliminary geotechnical design recommendations for the proposed development.

1.1 Proposed Construction and Grading

The referenced conceptual grading plan tract map prepared by Sikand Engineering dated June 13, 2018 indicates that the proposed development will consist of 24 single-family residential lots with associated roadways, walk ways, and hardscape, landscape areas and a water quality basin and a debris basin. It is anticipated that the structures will be up to two-stories, with wood/steel frame and masonry wall construction and some masonry block walls. This type of construction provides for relatively moderate to heavy loads imposed on the underlying foundation soil.

The referenced 80-scale tentative tract map indicates proposed cut and fill depths will be generally be approximately 32 and 22 feet, respectively. Proposed maximum cut and fill slope heights are about 55 feet and 22 feet respectively, at slope ratios of 2:1 (h:v) or flatter.

1.2 Location and Site Description

The site is located north of Jennings Court, west of Morton Road and east of the mountains at the base, in the City of Moreno Valley, in Riverside County, California. The site is irregular in shape and is approximately 32.8-acres in size. The site is moderately covered with annual weeds and shrubs, some cluster of trees and scatter boulders, mainly at the base of the mountain. The site also contains some scattered trash and debris. The general location and configuration of the site is shown on the Site Location Map (Figure 1).



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

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FIGURE 1
SITE LOCATION MAP

Project Name	TENTATIVE TRACT MAP NO. 37557
Project No.	G18-1648-10
Geol./ Eng.	RLG/JPN
Scale	NOT TO SCALE
Date	SEPTEMBER 2018

1.3 Topography and Drainage

The topography of the site is undulated with approximately four washes running down the site from the northeast. Elevations range from approximately 2,040 feet above mean sea level (msl) in the northeastern portion of the site to approximately 1,588 feet msl in the western portion of the site.

1.4 Existing Improvements and Vegetation

The site has not been previously developed. Vegetation consists of a moderate to dense cover of annual weeds/shrubs

1.5 Research of Previous Geological and Geotechnical Data

LGC researched published and unpublished geotechnical reports and geologic data (Appendix A). Pertinent site and geologic information were incorporated into the conclusions and recommendations presented in this report.

1.6 Aerial Photograph Analysis

Google Earth Pro aerial imagery (from 1994 to 2018) was evaluated for the subject site and surrounding vicinity. The available information, as it pertains to the geologic and geotechnical issues of the proposed single-family residence, has been incorporated into the conclusions and recommendations presented in this report.

Our review of the aerial photographs indicates that the site has been a vacant property from 1994 to the present.

2.0 FIELD INVESTIGATION

2.1 Geologic Mapping

Surface geologic mapping of the site and accessible surrounding areas was completed by a geologist from this firm during September 2018, utilizing the referenced Conceptual Grading Plan Tract Map No. 37557 for plotting geologic observations. This information is plotted on the enclosed Geotechnical Map (Plate 1).

2.2 Field Exploration

Ten (10) exploratory trenches, TR-1 through TR-8 and IT-1 through IT-2, were excavated with a backhoe on September 4, 2018 and September 6, 2018 to depths of approximately 3.0 to 13.5 feet below the existing ground surface. The trenches were excavated to evaluate the general characteristics of the subsurface geologic/geotechnical conditions beneath the site, those include classification of site soil and bedrock, determination of groundwater elevations (if present), and the collection of representative soil samples.

Prior to our subsurface work, an underground utilities clearance was obtained from Underground Services Alert of Southern California. At the conclusion of the subsurface exploration, the trenches were backfilled with on-site materials with some compactive effort. Minor settlement of the backfill soil may occur over time.

Earth materials recovered from beneath the site were classified and logged by a geologist from LGC in accordance with the visual-manual procedures of the Unified Soil Classification System. The approximate locations of the exploratory borings and trenches are shown on the Geotechnical Map (Plate 1) and descriptive logs are presented in Appendix B.

Bulk samples of soil associated with the exploratory trenches were collected for laboratory testing. Bulk samples consisted of selected soil and bedrock materials obtained at various depth intervals from the exploratory trenches.

2.3 Laboratory Testing

During our subsurface exploration, relatively undisturbed and bulk soil samples were retained for laboratory testing. Laboratory tests were performed on selected representative samples of onsite soil materials and included maximum dry density and optimum water content, expansion index, sulfate content, chloride content, pH, resistivity, and shear strength. A brief description of the laboratory test results and test data are presented in Appendix C.

3.0 FINDINGS

3.1 Regional Geologic Setting

The site is located in the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges are characterized by steep, elongated valleys that trend west to northwest. Locally the northwest-trending topography is controlled by the Elsinore fault zone, which extends from the San Gabriel River Valley southeasterly to the United States/Mexico border. The Santa Ana Mountains lie along the western side of the Elsinore fault zone, while the Perris Block is located along the eastern side of the fault zone. These mountainous regions are underlain by Pre-Cretaceous, metasedimentary and metavolcanic rocks and Cretaceous plutonic rocks of the Southern California Batholith. Tertiary and Quaternary rocks are generally comprised of non-marine sediments consisting of sandstone, mudstones, conglomerates, and occasional volcanic units. A map of the regional geology is presented on the Regional Geologic Map (Figure 2).

3.2 Local Geology and Soil Conditions

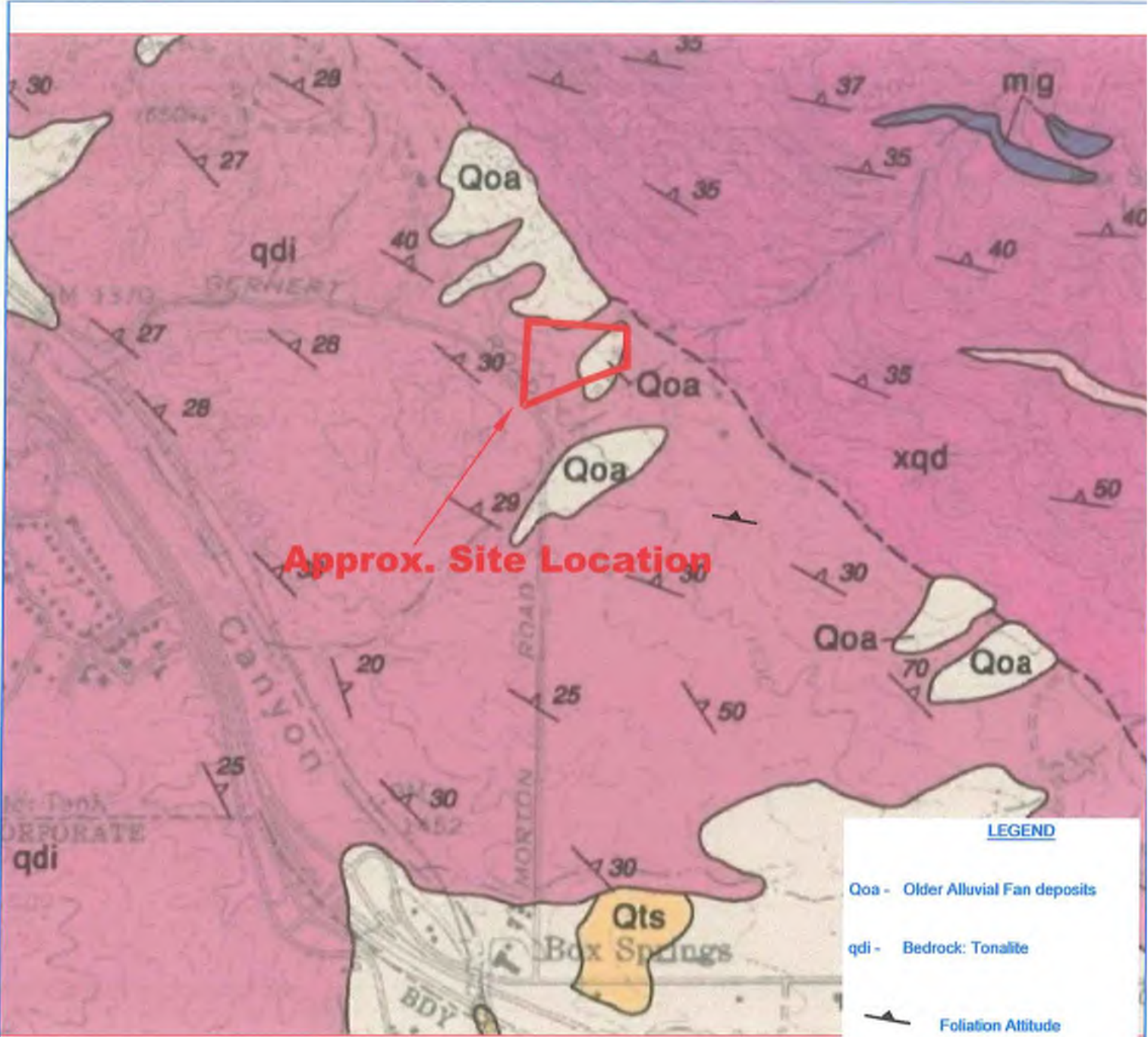
Based on our review of available geological and geotechnical literature, current field mapping, exploratory trenches and exploratory borings conducted at the site, it is our understanding that the site is primarily underlain by undocumented artificial fill, older alluvial fan deposits, and Bonzal Tonalite bedrock. Each unit is described in greater detail below and presented within the exploratory trench and boring logs (Appendix B). The approximate locations of the observed geologic units are depicted on the Geotechnical Map (Plate 1).

Artificial Fill, Undocumented (Afu): During our subsurface exploration, artificial fill (undocumented) was encountered down to depths ranging from approximately 2.0 feet to 5.5 feet. The artificial fill generally consists of silty sand and clayey silt and is various shades of brown, red and black; very fine to medium grained with some coarse grains; coarse and very coarse rock fragments; dry to damp; medium dense/firm; contains some pores; root hairs; desiccated; with traces of concrete pieces.

Topsoil (No Map Symbol): Topsoil was present within portions of the site overlying the older alluvial deposits or bedrock. The topsoil consisted of silty sand which was generally very fine to coarse grained, various shades of red and brown, dry to damp, loose to medium dense, desiccated with some pores and roots. These materials were generally 0.5 foot to 2.0 foot thick where explored.

Alluvium (Qal): Alluvium is present within drainage courses on the site and consist of silty sand which is generally very fine to coarse grained, various shades of red and brown, dry to damp, loose to medium dense with some rock fragments, pores, and roots. The alluvium where explored is about 2.0 feet to 7.0 feet deep and could be as much as 10.0 feet deep.

Older Alluvial Fan Deposits (Qoa): Older alluvial fan deposits encountered on the site during our subsurface exploration, were observed to range from the surface approximately 2.0 feet to 6.5 feet deep to as deep as 12 feet. The older alluvial fan deposits generally consist of silty sand and is



GEOLOGIC MAP OF THE RIVERSIDE EAST/SOUTH 1/2 IF SAN BERNARDINO SOUTH QUADRANGLES, SAN BERNARDINO AND RIVERSIDE COUNTY, CALIFORNIA
 By Thomas W. Dibble, Jr.. 2003 Edited by John A. Minch



FIGURE 2
REGIONAL GEOLOGIC MAP

Project Name	TENTATIVE TRACT MAP NO. 37557
Project No.	G18-1648-10
Geol./ Eng.	RLG/JPN
Scale	NOT TO SCALE
Date	SEPTEMBER 2018

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

characterized as being various shades of brown, green, gray, and red; dry; medium to very dense; very fine to medium grained with coarse grains; pinhole pores; root hairs; with oxidation staining. Portions of the upper 1.0 foot to 2.0 foot are weathered.

Bedrock: Bonzal Tonalite (Qdl) – Bedrock of the Peninsular Ranges was present at the near surface, but mostly below the topsoil, alluvium and older alluvial fan deposits at depths of about 0.5 feet to 12.0 feet. The bedrock consists of quartz diorite. The bedrock was slightly to moderately weathered; various shades of black, orange, gray, yellow, brown and white; dry to damp; moderately hard to very hard; friable; fine to very coarse grained; with oxidation staining; and manganese staining.

3.3 Landslides

Our review of geologic literature did not indicate the presence of landslides on or directly adjacent to the site.

3.4 Groundwater

Groundwater was not encountered during the subsurface exploration performed for this report. Our review of the California Department of Water Resources, Water Data Library 2018 online database indicates historical depths of groundwater approximately four miles away from the general site area is about 73 feet below the existing ground surface at an elevation of approximately 1,638 above mean sea level (Well ID: Station 335628N1171932W001).

3.5 Caving

Caving was not encountered in the exploratory trenches. Caving may occur within excavations made into the friable portions of the alluvium, older alluvial fan deposits and weathered bedrock.

3.6 Surface Water

Surface water runoff relative to project design is the purview of the project civil engineer and should be designed to be directed away from all structures and walls.

3.7 Faulting

The geologic structure of the Southern California area is mainly dominated by northwest-trending faults associated with the San Andreas system. Faults, such as the Whittier, Elsinore, San Jacinto and San Andreas, are major faults in this system and are known to be active and may produce moderate to strong ground shaking during an earthquake. In addition, the San Andreas, Elsinore and San Jacinto faults are known to have ruptured the ground surface in historic times.

The following table is comprised of a list of the significant faults located within 20 miles of the proposed project site. We have also included the Maximum Earthquake Magnitude predicted for each of these faults.

TABLE 1
Significant Faults in Proximity of the Project Site

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE (mi)	MAXIMUM EARTHQUAKE MAGNITUDE (Mw)
San Jacinto-San Bernardino	5.2	6.7
San Jacinto-San Jacinto Valley	5.6	6.9
San Andreas-San Bernardino	14.9	7.3
San Andreas-Southern	14.9	7.4
Elsinore-Glen Ivy	18.5	6.8
Chino-Central Ave (Elsinore)	19.0	6.7
Cucamonga	19.4	7.0

Source: EQFAULT for Windows Version 3.00b

Active, potentially active, or inactive faults are not known to project through the site. The site does not lie within an Alquist-Priolo Earthquake Fault Hazard Zone as defined by the State of California in the Alquist-Priolo Earthquake Fault Hazard Zoning Act or a Riverside County Fault Zone Map. The possibility of damage to structures or site improvements because of ground rupture is considered negligible because active faults are not known to cross the site.

3.8 Seismicity

Secondary effects of seismic shaking resulting from large earthquakes on the major faults in the southern California region, which may affect the site, include soil liquefaction and dynamic settlement. Liquefaction is a seismic phenomenon in which loose, saturated, granular soil behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: 1) groundwater within 50 feet of the ground surface 2) low density non-cohesive (granular) soil; and 3) high-intensity ground motion. Studies indicate that saturated, loose to medium dense, near surface cohesionless soil exhibit the highest liquefaction potential, while dry, dense, cohesionless soil and cohesive soil exhibit low to negligible liquefaction potential.

Other secondary seismic effects include shallow ground rupture, seiches, and tsunamis. In general, these secondary effects of seismic shaking are a possibility throughout the Southern California region and are dependent on the distance between the site and causative fault and the onsite geology. A risk assessment of these secondary effects is provided in the following sections.

3.9 Settlement Analysis

The results of our subsurface exploration and laboratory testing indicate the site is underlain by approximately 2 feet to 7 feet to possibly up to 10 feet of potentially compressible and/or hydro-collapsible soil, consisting of artificial fill, undocumented, topsoil, alluvium, weathered older alluvial fan deposits and weathered bedrock. These materials exhibit the potential to settle or hydro-consolidate under the surcharge of proposed fill loads and anticipated future structural loads.

In areas where overexcavation to competent underlying older alluvial fan deposits or bedrock is accomplished, total settlement of about 0.50-inch, and a differential settlement of about 0.25-inch over a distance of about 40 feet could be anticipated.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 General

Based on the results of our current geotechnical investigation, it is our opinion that the proposed residential development, as indicated on the conceptual grading plan tract map, is feasible from a geotechnical and geologic standpoint, provided that the following recommendations are incorporated into the design criteria and project specifications and implemented during site grading and during construction. When actual grading plans for the site and foundation/structural plans for the proposed development are available, a comprehensive plan review should be performed by LGC. Depending on the results, additional recommendations may be necessary to provide updated geotechnical design parameters for both earthwork and foundations. Grading should be conducted in accordance with local codes, the recommendations within this report, and future plan reviews. It is also our opinion that the proposed construction and grading will not adversely impact the geologic stability of adjoining properties.

The following is a summary of the primary geotechnical factors determined from our geotechnical investigation.

- The site is underlain by undocumented artificial fill, topsoil, alluvium, older alluvial fan deposits and bedrock.
- Landslides are not known to impact the site.
- Groundwater are not considered a constraint for the proposed development.
- The potential for liquefaction is considered negligible because of shallow depths to very dense older alluvial fan deposits and hard bedrock.
- Active or potentially active faults are not known to exist on the site.
- Laboratory test results of the upper soil and bedrock indicate a very low expansion potential and negligible potential for soluble sulfate effects on normal concrete and chloride effects on reinforcing steel.
- The majority of the site is underlain by approximately 2 feet to 7 feet to as much as 10 feet locally of undocumented artificial fill, topsoil, alluvium, weathered older alluvial fan deposits and weathered bedrock which may be prone to potential intolerable post-grading settlement and/or hydroconsolidation, under the surcharge of the future proposed structural loads and/or fill loads. These materials should be overexcavated to underlying competent older alluvial fan deposits or bedrock.
- The existing onsite soil from a geotechnical perspective, appear to be suitable material for use as fill, provided those are relatively free from rocks (larger than 12 inches in maximum dimension), construction debris, and organic material. It is anticipated that the onsite soil may be excavated with conventional heavy-duty construction equipment.

5.0 GEOLOGIC CONSIDERATIONS

5.1 Slopes

Cut slopes and fill slopes to the proposed slope heights and slope ratios of approximately 2:1 (H:V) or flatter and should be grossly and surficially stable.

5.2 Faulting

Geologic hazards related to fault rupture are not known or not detected during our field exploration and site reconnaissance to be present at the site.

5.3 Groundwater

Adverse effects on the proposed development resulting from groundwater are not anticipated.

5.4 Subsidence

In consideration of the anticipated grading, recommended overexcavations, proposed structures and improvements, and subsurface material types and their conditions, unfavorable ground subsidence is not anticipated. This should be confirmed with additional consolidation testing in the older alluvial fan deposits.

5.5 Landsliding

Landslides or surface failures were not observed at or directly adjacent to the site. As a result, the probability of the site being affected by landslides is considered nil.

5.6 Ground Rupture

Ground rupture because of active faulting is not likely to occur on site because of the absence of known active fault traces on the site. Cracking because of shaking from distant seismic events is not considered a significant hazard, although it is a possibility at any site.

5.7 Rock Fall

The potential for rock fall is considered moderate, due to the close proximity of the mountainside. See referenced report in Appendix A.

5.8 Tsunamis and Seiches

Based on the elevation of the site with respect to sea level and its distance from large open bodies of water, the potentials for seiche and/or tsunami is considered to be negligible.

6.0 SEISMIC-DESIGN CONSIDERATIONS

6.1 Ground Motions

The site will probably experience ground shaking from moderate to large size earthquakes during the life of the proposed development. Furthermore, it should be recognized that the Southern California region is an area of high seismic risk, and that it is not considered feasible to make structures totally resistant to seismic-related hazards.

Structures within the site should be designed and constructed to resist the effects of seismic ground motions as provided in the 2016 CBC, Section 1613. The method of design is dependent on the seismic zoning, site characterizations, occupancy category, building configuration, type of structural system, and building height.

The following seismic design parameters, presented in Table 2, were developed based on the CBC 2016 and should be used for the proposed structures. A site coordinate of 33.8066° N, 117.1195° W was used to derive the seismic parameters presented below.

TABLE 2
Seismic Design Soil Parameters

SEISMIC DESIGN SOIL PARAMETERS (2016 CBC Section 1613)	
Site Class Definition ASCE 7; Chapter 20 (Table 20.3-1)	D
Mapped Spectral Response Acceleration Parameter S_s (for 0.2 second) (Figure 1613.5.3.(1))	1.51
Mapped Spectral Response Acceleration Parameter, S_1 (for 1.0 second) (Figure 1613.5.3.(2))	0.64
Site Coefficient F_a (short period) [Table 1613.3.3.(1)]	1.0
Site Coefficient F_v (1-second period) [Table 1613.3.3.(2)]	1.5
Adjusted Maximum Considered Earthquake (MCE) Spectral Response Acceleration Parameter S_{MS} (short period) (Eq. 16-37)	1.51
Adjusted Maximum Considered Earthquake (MCE) Spectral Response Acceleration Parameter S_{M1} (1-second period) (Eq. 16-38)	0.96
Design Spectral Response Acceleration Parameter, S_{DS} (short period) (Eq. 16-39)	1.00
Design Spectral Response Acceleration Parameter, S_{D1} (1-second period) (Eq. 16-40)	0.64
Mean Peak Ground Acceleration (PGA_m)	0.59

6.2 ***Secondary Seismic Hazards***

Secondary effects of seismic activity normally considered as possible hazards to a site include several types of ground failure, as well as induced flooding. Various general types of ground failures which might occur as a consequence of severe ground shaking of the site include liquefaction, landsliding, ground subsidence, ground lurching, and shallow ground rupture. The probability of occurrence of each type of ground failure depends on the severity of the earthquake, distance from faults, topography, subsoil and groundwater conditions, in addition to other factors. Based on the proposed grading and recommended overexcavation of potentially compressible materials within areas of proposed development, the secondary effects of liquefaction and other seismic activity noted above are considered unlikely at the site.

Seismically induced flooding, which might be considered a potential hazard to a site, normally includes flooding because of a tsunami (seismic sea wave), a seiche (i.e., a wave-like oscillation of the surface of water in an enclosed basin that may be initiated by a strong earthquake) or failure of a major reservoir or retention structure upstream of the site. The site is located several miles inland from the nearest coastline of the Pacific Ocean at an elevation in excess of approximately 1630 feet above msl, the potential for seismically induced flooding because of tsunami inundation is considered nonexistent. Enclosed bodies of water do not lie adjacent to the site, the potential for seiche induced flooding at the site is considered nonexistent.

7.0 GEOTECHNICAL DESIGN PARAMETERS

7.1 ***Shrinkage/Bulking and Subsidence***

Volumetric changes in earth quantities occur when excavated onsite soil are replaced as properly compacted fill. The following table, Table 3, is an estimate of the shrinkage and bulking factors for the various geologic units present onsite. These estimates are based on in-place densities of the various materials and on the estimated average degree of relative compaction that will be achieved during grading.

TABLE 3
Estimated Shrinkage/Bulking

<i>GEOLOGIC UNIT</i>	<i>SHRINKAGE PERCENT</i>
Artificial Fill, Undocumented	6% to 15%
Alluvium	10% to 15%
Topsoil	10% to 15%
Older Alluvial Fan Deposits (Qoa)	9% to 13%
<i>GEOLOGIC UNIT</i>	<i>BULKING PERCENT</i>
Bedrock: Bonzal Tonalite	0% TO 10%

Subsidence of the older alluvial fan deposits and bedrock, because of recompaction of exposed soil or bedrock prior to fill placement, and placement of proposed fills, is estimated to be about 0.15 to 0.20 feet.

The above estimates of shrinkage are intended as an aid for project engineers in determining earthwork quantities. **However, these estimates should be used with some caution since they are not absolute values.** These are preliminary rough estimates which may vary with depth of removal, stripping losses, field conditions at the time of grading, etc. Handling losses, and reduction in volume due to removal of oversized material, are not included in the estimates.

7.2 *Excavation Characteristics*

The following excavation characteristics of the various material types at the site have been developed based on LGC's geologic mapping and experience with these materials in the area and are presented in Table 4 below:

TABLE 4
Excavation Characteristics

<i>GEOLOGIC UNIT</i>	Easy* Ripping	Moderately** Difficult Ripping	Oversized Material (>6 inches)
Artificial Fill (Afu)	X	X	X
Topsoil	X		
Alluvium (Qal)	X		X
Alluvial Fan Deposits (Qf)	X	X	
Bedrock: Bonzal Tonalite (Qdl)		X	X

To better determine if rip-ability with conventional equipment is feasible or if alternative excavation methods such as blasting is necessary, we recommend a seismic refraction survey.

7.3 *Compressible/Collapsible Soil*

The results of our laboratory in-situ moisture and density testing indicate that the existing undocumented artificial fill, topsoil, alluvium and weathered portions of the older alluvial fan deposits and bedrock are susceptible to varying degrees of intolerable settlement and/or hydro-consolidation (collapse) when a load is applied, or the soil is saturated. Consequently, these materials should be collectively overexcavated to underlying competent older alluvial fan deposits or bedrock and replaced as engineered compacted fill.

8.0 SITE EARTHWORK

8.1 General Earthwork and Grading Specifications

Earthwork and grading should be performed in accordance with applicable requirements of the grading code of the County of Riverside and in accordance with the following recommendations prepared by this firm. Grading should also be performed in accordance with the applicable provisions of the attached "Standard Grading Specifications" prepared by LGC (Appendix D), unless specifically revised or amended herein. In case of conflict, the following recommendations shall supersede those included in as part of LGC's General Earthwork and Grading Specifications (Appendix D).

8.2 Geotechnical Observations and Testing

Prior to the start of grading, a meeting should be held on the site with the owner or his representative, developer, grading contractor, civil engineer and geotechnical consultant to discuss the work schedule and geotechnical aspects of the grading. Rough grading, which includes clearing, overexcavation, scarification/processing and fill placement, should be accomplished under the full-time observation and testing of the geotechnical consultant. Fills should not be placed without prior approval from the geotechnical consultant.

A representative of the project geotechnical consultant should also be present onsite on a full-time basis during grading operations to document proper placement and compaction of fills, as well as to document excavations and compliance with the other recommendations presented herein.

8.3 Clearing and Grubbing

Weeds/shrubs, grasses, boulders and trees in areas to be graded should be stripped and hauled offsite. Trees to be removed should be grubbed so that the stumps and major-root systems are removed and the organic materials hauled offsite. During site grading, roots, tree branches and other deleterious materials missed during clearing and grubbing operations should be removed from fill sources prior to placement.

The project geotechnical consultant or his qualified representative should be notified at the appropriate times to provide observation and testing services during clearing and grubbing operations to observe and document compliance with the above recommendations. In addition, buried structures, unusual or adverse soil conditions encountered that are not described or anticipated herein should be brought to the immediate attention of the geotechnical consultant. The existing drainage courses must be cleared of organics, debris, and sediment and widened to accommodate compaction equipment.

8.4 Private Sewage System Abandonment

Private sewage systems and/or other subsurface structures that may be encountered should be located, removed and/or properly abandoned. Abandonment and/or removal of septic systems that may exist should be in accordance with local codes. Seepage pits, if abandoned in-place, should be pumped clean, backfilled with gravel or clean sand jetted into place, and then capped with 2 feet or more of at least a 2-sack slurry for a minimum distance of 2 feet outside the edge of the seepage pit. The top of the slurry cap should be at least 10 feet below proposed grade.

8.5 Water-Well Capping

Unknown water wells that are encountered within the site, which are to be abandoned, should be abandoned and capped under permit by the appropriate governmental agency from Riverside County. In addition, a minimum 10-foot thick compacted fill blanket, below proposed grade, should be placed above the previously or newly-capped water wells.

8.6 Overexcavation and Ground Preparation

The site is underlain by approximately 2 feet to 7 feet and possibly as much as 10 feet of compressible materials. Existing undocumented artificial fill, topsoil, alluvium and weathered portions of the older alluvial fan deposits and bedrock are considered unsuitable for support of proposed fills, structures, and/or improvements, and should be overexcavated to expose underlying competent older alluvial fan deposits or bedrock. Where overexcavation and grading do not provide 5 feet or more of fill below finished pad-grade within areas for proposed structures, retaining walls, or fence walls, the area should be overexcavated to 5 feet or more below proposed grade or 2 feet or more below the bottom of footings for structures or walls, whichever is deeper. Actual depths of overexcavation should be evaluated upon review of final grading and foundation plans as well as during grading on the basis of observations and testing during grading by the project geotechnical consultant.

Prior to placing engineered fill, the exposed bottom surfaces in each overexcavated area should first be scarified to a depth of approximately 6 inches, watered or air-dried as necessary to achieve a uniform water content near optimum or slightly higher, and then compacted in place to a relative compaction of 90 percent or more (based on American Standard of Testing and Materials [ASTM] Test Method D1557).

The estimated locations, extent, and approximate depths for overexcavation of unsuitable materials are indicated on the enclosed Geotechnical Map (Plate 1). The geotechnical consultant should be provided with appropriate survey staking during grading to document that depths and/or locations of recommended overexcavation are adequate.

Sidewalls for overexcavations greater than 4 feet in height should not be steeper than 1:1 horizontal to vertical (h:v) and should be periodically slope-boarded during excavation to remove loose surficial debris and facilitate geologic mapping. Flatter excavations may be necessary for stability.

The grading contractor will need to consider appropriate measures necessary to excavate existing improvements adjacent to the site without endangering those because of caving or sloughing.

8.7 Subdrains

Following overexcavation of the topsoil, alluvium and weathered portions of the older alluvial fan deposits or bedrock, in the existing drainage course of the site a subdrain should be installed where the ultimate depth of fill below proposed grade exceeds approximately 10 feet. Tentative locations of the recommended subdrains should be evaluated once actual grading plans are developed. Actual locations should also be determined by the geotechnical consultant once conditions are exposed during grading. The subdrains will help mitigate potential buildup of hydrostatic pressures below compacted fill due to infiltration of sub-surface and surface waters.

8.8 Fill Suitability

Soil materials excavated during on-site grading are generally considered suitable for use as compacted fill provided that such soil does not contain significant amounts of trash, vegetation, organic material, construction debris, and oversize material.

8.9 Oversized Material

Oversized material that may be encountered during grading, greater than 6 inches, should be reduced in size or removed from the site

8.10 Cut/Fill Transitions and Differential Fill Thicknesses

To mitigate distress to structures and walls related to the detrimental effect of differential settlement, the cut portions should be eliminated from cut/fill transition areas in order that the entire structure or wall be founded on a approved uniform material. This should be accomplished by overexcavating the "cut" portions and shallow fill portions 5 feet or more below proposed pad grade or 2 feet below proposed

footings for structures or walls, whichever is deeper and replacing the excavated materials as properly compacted fill. Recommended depths of overexcavation are provided in the following table:

<i>DEPTH OF FILL ("fill" portion)</i>	<i>DEPTH OF OVEREXCAVATION ("cut" portion)</i>
Up to 15 feet	5 feet (minimum)
Greater than 15 feet	One-third the maximum thickness of fill placed on the "fill" portion (12 feet maximum)

8.11 Benching

Where compacted fills are to be placed on natural slope surfaces inclining at 5:1 (h:v) or greater, the ground should be excavated to create a series of level benches, which have at least a minimum height of 4 feet, excavated into competent bedrock or existing compacted engineered materials. Typical benching details are described in the attached LGC "Standard Grading Specifications" (Appendix D).

8.12 Fill Placement

Fills should be placed in lifts not greater than 6 inches in uncompacted thickness, watered or air-dried as necessary to achieve a uniform water content of at least optimum moisture content, and then compacted in place to relative compaction of 90 percent or more. Fills should be maintained in a relatively level condition. The laboratory maximum dry density and optimum moisture content for each change in soil type should be determined in accordance with ASTM Test Method D1557.

8.13 Inclement Weather

Inclement weather may cause rapid erosion during mass grading and/or construction. Proper erosion and drainage control measures should be in-place during periods of inclement weather in accordance with Riverside County and California State requirements.

9.0 SLOPE CONSTRUCTION

9.1 Slope Stability

Cut slopes and fill slopes at the proposed heights at slope ratios of approximately 2:1 (H:V) or flatter and should be grossly and surficially stable.

9.2 Fill Slopes

Following overexcavation of unsuitable materials, fill slopes and fill over cut slopes should be initiated on a minimum 15 feet wide key excavated into competent older alluvial fan deposits or bedrock if the ground gradient is steeper than 5:1 (H:V) as approved by LGC. The bottom of the fill keys should be tilted at 2 percent back into the slope.

9.3 Cut Slopes

Proposed cut slopes may expose low-density, dry and/or cohesionless soil or bedrock with out-of-slope planner features, which will likely require stabilization by overexcavation and replacement with compacted fill.

9.4 Temporary Excavations

Temporary excavations varying up to a height of approximately 2 feet to 10 feet below existing grades will be necessary to accommodate the recommended overexcavation of the unsuitable soil. Based on the physical properties of the onsite soil, temporary excavations exceeding 4 feet in height should be cut back at a ratio of 1:1 (h:v) or flatter, for the duration of the overexcavation and recompaction of unsuitable soil material. Temporary slopes excavated at the above slope configurations are expected to remain stable during grading operations. However, temporary excavations should be observed by a representative of the project geotechnical consultant for any evidence of potential instability. Depending on the results of these observations, revised slope configurations may be necessary.

Other factors which should be considered with respect to the stability of the temporary slopes include construction traffic and storage of materials on or near the tops of the slopes, construction scheduling, presence of nearby walls or structures on adjacent properties, and weather conditions at the time of construction. Applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act of 1970, and the Construction Safety Act should also be followed.

10.0 POST-GRADING CONSIDERATIONS

10.1 Control of Surface Water and Drainage Control

Positive-drainage devices such as sloping sidewalks, graded-swales, and/or area drains, should be provided to collect and direct water away from the structure and slopes. Neither rain nor excess irrigation water should be allowed to collect or pond against building foundations. Drainage should be directed to adjacent driveways, adjacent streets or storm-drain facilities and maintained at all times. The site is in a semi-arid climate area, from a geotechnical standpoint, thus the ground surface adjacent to the structures should be sloped at a gradient of at least 2 percent for a distance of at least 10 feet. Each graded lot should be further maintained by a swale or drainage path at a gradient of at least 1 percent. Where necessary, drainage paths may be shortened by use of area drains and collector pipes. Planters with open bottoms adjacent to buildings should be avoided. Over watering must be avoided.

10.2 Utility Trenches

Utility-trench backfill within roadways, utility easements, under walls, sidewalks, driveways, floor slabs and any other structures or improvements should be mechanical compacted. The onsite soil should generally be suitable as trench backfill provided those are screened of rocks and other material over 3 inches in diameter and organic matter. Trench backfill should be compacted in uniform lifts (generally not exceeding 6 inches to 8 inches in uncompacted thickness) by mechanical means to at least 90 percent relative density (per ASTM Test Method D1557). Density testing, along with probing, should be performed by the project geotechnical consultant or his representative, to document proper compaction.

If trenches are shallow, the use of conventional equipment may result in damage to the utilities. Clean sand, having a sand equivalent (SE) of 30 or greater should be used to bed and shade the utilities. Sand backfill should be densified. The densification may be accomplished by jetting or flooding and then tamping to ensure adequate compaction. A representative from LGC should observe, probe, and test the backfill to verify compliance with the project specifications.

Utility-trench sidewalls deeper than 4 feet should be laid back at a ratio of 1:1 (h:v) or flatter or braced. A trench box may be used in lieu of shoring. If shoring is anticipated, LGC should be contacted to provide design parameters.

To avoid point-loads and subsequent distress to clay, cement or plastic pipe, imported sand bedding should be placed 1-foot or more above pipe in areas where excavated trench materials contain significant cobbles. Sand-bedding materials should be compacted and tested prior to placement of backfill.

Where utility trenches are proposed parallel to building footings (interior and/or exterior trenches), the bottom of the trench should not be located within a 1:1 (h:v) plane projected downward from the outside bottom edge of the adjacent footing.

11.0 PRELIMINARY FOUNDATION DESIGN RECOMMENDATIONS

11.1 General

Provided that site grading is performed in accordance with the recommendations of this report, conventional shallow foundations are considered feasible for support of the proposed residential structures. Tentative foundation recommendations are provided herein. However, these recommendations may require modification depending on existing as-graded conditions within the building sites upon completion of grading.

11.2 Allowable-Bearing Values

An allowable-bearing value of 2,500 pounds per square foot (psf) may be used for 12-inch wide or greater continuous footings or 24-inch square pad footings, founded completely within in competent compacted fill at a depth of 12-inches or more below the lowest adjacent compacted pad grade. This value may be increased by 20 percent for each additional foot of width and depth, to a value not greater than 3,500 psf. The recommended allowable-bearing value includes both dead and live loads. The bearing capacities should be re-evaluated when loads and footing sizes have been finalized.

11.3 Settlement

Based on the general settlement characteristics of compacted fill, the previous overexcavation recommendations in this report and anticipated loading, it is estimated the site would be subjected to a total settlement about 0.50-inch, and a differential settlement of about 0.25-inch over a distance of about 30 feet. It is anticipated that the majority of the settlement will occur during construction or shortly thereafter as building loads are applied.

The above settlement estimates are based on the assumption that a actual rough grading plan will be submitted to LGC for review, that additional soil tests may be deemed necessary, that revised settlement prediction may result and that grading will be performed in accordance with the final grading recommendations presented in a supplemental report and that the project geotechnical consultant will observe and/or test the soil conditions in the footing trenches.

11.4 Lateral Resistance

Lateral forces on footings should be resisted by passive earth resistance and friction at the bottom of the footing. Foundations should be designed for a passive earth pressure of 330 psf per foot of depth to a maximum value of 3,300 psf and a coefficient of friction of 0.40. The passive earth pressure incorporates a minimum factor of safety of 1.5. The above values may be increased by 1/3 when designing for short-duration wind or seismic forces.

The above values are based on footings placed directly against compacted fill. In the case where footing sides are formed, backfill placed against the footings should be compacted to 90 percent or more of maximum dry density as determined by ASTM D1557.

11.5 Footing Setbacks from Descending Slopes

Where structures are proposed near the tops of descending graded or natural slopes, the footing setbacks from the slope face should conform to the 2016 CBC, Figure 1808.7.1. The required setback is H/3 (one-third the slope height) measured along a horizontal line projected from the lower outside face of the footing to the slope face. The footing setbacks should be 5 feet or more where the slope height is 15 feet or less and vary up to 40 feet where the slope height exceeds 15 feet.

11.6 Building Clearances from Ascending Slopes

Building setbacks from ascending graded or natural slopes should conform with the 2016 CBC, Figure 1808.7.1, which requires a building clearance of H/2 (one-half the slope height) varying from 5 to 15 feet. The building clearance is measured along a horizontal line projected from the toe of the slope to the face of the building. A retaining wall may be constructed at the base of the slope to achieve the required building clearance.

11.7 Footing Observations

Footing trenches should be observed by the project geotechnical consultant to document that they have been excavated into competent bearing compacted fill soil. The foundation trenches should be observed prior to the placement of forms, reinforcement or concrete. The trenches should be trimmed neat, level and square. Loose, sloughed or moisture-softened soil should be removed prior to concrete placement.

Excavated materials from footing excavations should not be placed in slab-on-ground areas unless the soil are compacted to 90 percent or more of maximum dry density as determined by ASTM D1557.

11.8 Expansive Soil Considerations

Results of preliminary laboratory tests by LGC indicate onsite soil materials exhibit expansion potentials of **VERY LOW** in accordance with 2016 CBC, Chapter 18. Given that generally the expansion index of the onsite soil is **VERY LOW**, recommendations to mitigate the effects of expansive soil may not be required. However, expansive soil conditions of the near surface finish grade soil should be evaluated and tested for individual building pads on a pad-by-pad basis during and at the completion of rough grading to verify and/or modify the anticipated conditions. The design and construction details presented herein are intended to provide recommendations for the levels of expansion potential which may be evident at the completion of rough grading. Furthermore, it should be noted that additional slab thickness, footing sizes and/or reinforcement more stringent than the recommendations that follow should be provided as recommended by the project structural engineer.

11.9 Footing/Floor Slabs - Very Low Expansion Potential

The following are our recommendations where foundation soil exhibit **VERY LOW** expansion potential as classified in accordance with 2016 CBC. For this condition, it is recommended that footings and floors be constructed and reinforced in accordance with the following criteria. However, additional slab thickness, footing sizes and/or reinforcement may be required by the project architect or structural engineer.

- ***Footings***

- Exterior continuous footings should be founded entirely in compacted engineered fill below the lowest adjacent final exterior pad grade at minimum depths of 12 inches and 18 inches deep for one-story and for two-story construction, respectively. Interior continuous footings may be founded at a depth of 12 inches or greater for one-story and two-story structures. Continuous footings should have a minimum width of 12 inches for one-story and 15 inches for two-story structures.

- Continuous footings should be reinforced with a minimum of two (2) No. 4 bars, one near the top and one near the bottom.
 - Interior isolated pad footings should be 24 inches or more square and founded at a depth of 12 inches or more for one-story and two-story structures and 18-inches or more for three-story and four-story structures, below the lowest adjacent grade. Footings should be reinforced in accordance with the structural engineer's recommendation.
 - Exterior pad footings should be 24 inches or more square and founded at a depth of 18 inches or more below the lowest adjacent grade. Isolated exterior footings should be connected with grade beams. Footings should be reinforced in accordance with the structural engineer's recommendations.
- **Floor Slabs**
 - Concrete floor slabs should be 4 inches or more thick and reinforced with No. 3 bars spaced 24 inches or less on-centers, both ways. Slab reinforcement should be supported on concrete chairs or bricks so that the desired placement is near mid-depth.
 - Concrete floors should be underlain with a moisture-vapor retarder consisting of 15-mil thick vapor barrier. Laps within the membrane should be sealed and overlapped 12 inches. Two inches or more of clean sand should be placed above and below the membrane to promote uniform curing of the concrete.
 - Prior to placing concrete, subgrade soil should be thoroughly moistened to approximately 100% of optimum water content to promote uniform curing of the concrete and reduce the development of shrinkage cracks. The moisture content should penetrate to a minimum depth of 12 inches.

12.0 RETAINING WALLS

12.1 Lateral Earth Pressures and Retaining Wall Design Parameters

Conventional footings for retaining walls founded entirely in properly compacted fill should be embedded at least 18 inches below lowest adjacent grade. At this depth, an allowable uniform bearing capacity of 2,500 psf may be assumed for retaining walls founded in competent compacted fill.

The following are lateral earth pressures are recommended for retaining walls up to 10 feet high that may be proposed. The recommended lateral pressures for approved on-site or import soil (**with an expansion index of 20 or less and an angle of internal friction (phi) of at least 36 degrees**) for level or sloping backfill are presented in Table 5. Onsite soil should be screened of rocks and other material over 3 inches in diameter.

TABLE 5
Lateral Earth Pressures

CONDITIONS	EQUIVALENT FLUID WEIGHT (pcf)			
	Level Backfill (up to 6 feet)	Level Backfill Dynamic (>6 feet to 10 feet)	2:1 Backfill Ascending (up to 6 feet)	2:1 Backfill Ascending-Dynamic (>6 feet to 10 feet)
Active	35	55	50	70
At-Rest	55	75	80	100
Passive	330	330	190	190

The friction coefficient of 0.40 may be used at the concrete footing and soil interface for sliding resistance. Wall footings should be designed in accordance with structural considerations.

Embedded structural walls should be designed to resist the lateral earth pressures. Restrained structural walls should be designed for at rest conditions. The magnitude of those pressures depends on the amount of deformation that the wall can yield under load. If the wall can yield enough to mobilize the full shear strength of the soil, it can be designed for "active" pressure. If the wall cannot yield under the applied load, the shear strength of the retained soil cannot be mobilized and the earth pressure will be higher. Such walls should be designed for "at-rest" conditions. If a structure moves toward the soil, the resulting resistance developed by the soil is the "passive" resistance.

The equivalent fluid pressure values assume free-draining conditions and a soil expansion index of 20 or less. If conditions other than those assumed above are anticipated, revised equivalent fluid pressure values should be provided on an individual-case basis by the geotechnical engineer.

Surcharge loading effects from the adjacent structures should be evaluated by the geotechnical and structural engineers.

12.2 Footing Embedments

The base of retaining wall footings constructed on level ground should be founded at a depth of 18 inches or more below the lowest adjacent final grade. Where retaining walls are proposed on or within 15 feet from the top of an adjacent descending fill slopes, the footings should be deepened such that a horizontal clearance of $H/3$ or more (one-third the slope height) is maintained between the outside bottom edges of the footings and the face of the slope but not to exceed 15 feet nor be less than 5 feet. The above recommended footing setbacks are preliminary and may be revised based on site specific soil conditions. Footing or pier excavations should be observed by the project geotechnical representative to document that the footing trenches have been excavated into competent bearing soil and to the embedments recommended above. These observations should be performed prior to placing forms or reinforcing steel.

12.3 Drainage

All retaining wall structures should be provided with appropriate wall drainage and appropriately waterproofed. Outlet pipes should be sloped to drain to a suitable outlet. It should be noted that that recommended wall drains does not provide protection against seepage through the face of the wall and/or efflorescence. If such seepage or efflorescence is undesirable, retaining walls should be waterproofed to reduce this potential.

Weep holes or open vertical masonry joints should be provided in retaining walls 3 feet or less in height to reduce the likelihood of entrapment of water in the backfill. Weep holes, if used, should be 3 inches or more in diameter and provided at intervals of 6 feet or less along the wall. Open vertical masonry joints, if used, should be provided at 32-inch or less intervals. A continuous gravel fill, 12 inches by 12 inches, should be placed behind the weep holes or open masonry joints. The gravel should be wrapped in filter fabric to reduce infiltration of fines and subsequent clogging of the gravel. Filter fabric may consist of Mirafi 140N or equivalent.

In lieu of weep holes or open joints, for retaining walls less than 3 feet, a perforated pipe and gravel subdrain may be used. Perforated pipe should consist of 4-inch or more diameter PVC Schedule 40 or ABS SDR-35, with the perforations laid down. The pipe should be embedded in 1.5 cubic feet per foot of 0.75 or 1.5-inch open graded gravel wrapped in Mirafi 140N filter fabric.

Retaining walls greater than 3 feet high should be provided with a continuous backdrain for the mean full height of the wall. This drain could consist of geosynthetic drainage composite, such as Miradrain 6000 or equivalent, or a permeable drain material, placed against the entire backside of the wall. If a permeable drain material is used, the backdrain should be 1 or more feet thick. Caltrans Class II permeable material or open graded gravel or crushed stone may be used as permeable drain material. If gravel or crushed stone is used, it should have less than 5 percent material passing the No. 200 sieve. The drain should be

separated from the backfill with a geofabric. The upper 1-foot of the backdrain should be covered with compacted fill. A drainage pipe consisting of 4-inch diameter perforated pipe (described above) surrounded by 1 cubic foot per foot of gravel or crushed rock wrapped in a filter fabric should be provided along the back of the wall. The pipe should be placed with perforations down, sloped at 2 percent or more to discharge towards an appropriate outlet through a solid pipe. The pipe should outlet away from structures and slopes. The outside portions of retaining walls supporting backfill should be coated with an approved waterproofing compound to inhibit infiltration of moisture through the walls.

12.4 Temporary Excavations

Retaining walls should be constructed and backfilled as soon as possible after backcuts are excavated. Prolonged exposure of backcut slopes may result in localized slope instability. To facilitate retaining wall construction, the lower 4 feet of temporary slopes may be cut vertical and the upper portions exceeding a height of 4 feet should be cut back at a gradient of 1:1 (h:v) or flatter for the duration of construction. Temporary slopes should be observed by the project geotechnical consultant for evidence of potential instability. Depending on the results of these observations, flatter slopes may be necessary. The potential effects of various parameters such as weather, heavy equipment travel, storage near the tops of the temporary excavations and construction scheduling should also be considered in the stability of temporary slopes. Water should not be permitted to drain towards the slope. Surcharges from equipment, spoil piles, etc., should not be allowed within 10 feet of the top of the slope.

All excavations should be made in accordance with Cal/OSHA. Excavation safety is the sole responsibility of the contractor.

12.5 Retaining Wall Backfill

The retaining wall backfill soil (with an expansion index of 20 or less and an angle of internal friction of at least 36 degree) should be placed in 6 to 8 inch loose lifts, moisture-conditioned or air-dried as necessary to achieve near optimum water conditions, and compacted to at least 90 percent relative density (based on ASTM Test Methods D2922 and D3017).

13.0 MASONRY GARDEN WALLS

13.1 Construction on Level Ground

Where masonry screen walls or garden walls are proposed on level ground and 5 feet or more from the tops of descending slopes, the footings for these walls may be founded at a depth of 18 inches or more below the lowest adjacent final grade. These footings should also be reinforced with two No. 4 bars, one top and one bottom and in accordance with the structural engineer's recommendations.

13.2 Construction Joints

In order to mitigate the potential for unsightly cracking related to the effects of differential settlement, positive separations (construction joints) should be provided in the walls at horizontal intervals of approximately 25 feet and at each corner. The separations should be provided in the blocks only and not extend through the footings. The footings should be placed monolithically with continuous rebar to serve as effective "grade beams" along the full lengths of the walls.

14.0 CONCRETE FLATWORK

14.1 Nonstructural Concrete Flatwork

Concrete flatwork (such as walkways, driveways, patios, bicycle trails, etc.) has a high potential for cracking because of changes in soil volume related to soil-moisture fluctuations. To reduce the potential for excessive cracking and lifting, concrete should be designed in accordance with the minimum guidelines outlined in Table 6. These guidelines will reduce the potential for irregular cracking and promote cracking along construction joints, but will not eliminate all cracking or lifting. Thickening the concrete and/or adding additional reinforcement will further reduce cosmetic distress.

TABLE 6
Minimum Recommendations for Nonstructural Concrete Flatwork Over Very Low Expansive Soil

	<i>Private Sidewalks</i>	<i>Private Drives</i>	<i>Patios/ Entryways</i>	<i>City Sidewalk Curb and Gutters</i>
Minimum Thickness (in.)	4 (nominal)	4(full)	4 (full)	City/Agency Standard
Presaturation	Presoak to 12 inches	Presoak to 12 inches	Presoak to 12 inches	City/Agency Standard
Reinforcement	—	No. 3 at 24 inches on centers	No. 3 at 24 inches on centers	City/Agency Standard
Thickened Edge	—	8" x 8"	8" X 8"	City/Agency Standard
Crack Control	Saw cut or deep open tool joint to a minimum of 1/3 the concrete thickness	Saw cut or deep open tool joint to a minimum of 1/3 the concrete thickness	Saw cut or deep open tool joint to a minimum of 1/3 the concrete thickness	City/Agency Standard
Maximum Joint Spacing	5 feet	10 feet or quarter cut whichever is closer	6 feet	City/Agency Standard

14.2 Joint Spacing

To reduce the potential for unsightly cracking, concrete sidewalks and patio type slabs should be provided with construction or expansion joints every 6 feet or less. Concrete driveway slabs should be provided with construction or expansion joints every 10 feet or less, with an aspect ratio of 1.2, to provide rectangular shaped joint patterns.

14.3 Subgrade Preparation

As a further measure to reduce cracking of concrete flatwork, the upper 12 inches of subgrade soil below concrete-flatwork areas should first be compacted to a relative density of 90 percent or more and then thoroughly wetted to achieve a moisture content that is equal to or slightly greater than optimum moisture content. This moisture should extend to a depth of 12 inches or more below subgrade and maintained in the soil during placement of concrete. Pre-watering of the subgrade will promote uniform curing of the concrete and reduce the potential for the development of shrinkage cracks. A representative of the project geotechnical consultant should observe and document the density and moisture content of subgrade soil and depth of moisture penetration prior to placing concrete.

15.0 PLANTERS

Area drains should be extended into planters that are located within 5 feet of building walls, foundations, retaining walls and masonry garden walls to reduce excessive infiltration of water into the underlying foundation soil. The surface of the ground in these areas should be sloped at a gradient of 2 percent or more away from the walls and foundations. Drip-irrigation systems are also recommended to reduce overwatering and subsequent saturation of the adjacent foundation soil.

16.0 SOIL CORROSIVITY

16.1 Corrosivity to Concrete and Metal

The National Association of Corrosion Engineers (NACE) defines corrosion as "a deterioration of a substance or its properties because of a reaction with its environment". From a geotechnical viewpoint, the "environment" is the prevailing foundation soil and the "substances" are the reinforced concrete foundations or various buried metallic elements such as rebar, piles, pipes, etc., which are in direct contact with or within close vicinity of the foundation soil.

In general, soil environments that are detrimental to concrete have high concentrations of soluble sulfates. ACI 318R-05, Table 4.3.1 provides specific guidelines for the concrete mix design based on different amount of soluble sulfate content. The minimum amount of chloride ions in the soil environment that are corrosive to steel, either in the form of reinforcement protected by concrete cover, or plain steel substructures such as steel pipes or piles, is 500 ppm per California Test 532 and ACI 318R-05, Table 4.4.1.

The corrosion potential of the onsite materials was evaluated for its effect on steel and concrete. The corrosion potential was evaluated using the results of laboratory tests on representative samples obtained during our field exploration. Laboratory testing was performed to evaluate pH, minimum electrical resistivity and chloride and soluble sulfate content. Based on testing performed during this investigation within the project site, the onsite soil are classified as having a negligible sulfate exposure condition in accordance with ACI 318R-05, Table 4.3.1, and negligible chloride exposure condition in accordance with ACI 318R-05, Table 4.4.1. Based on laboratory testing of on-site soil it is also our opinion that onsite soil should be considered highly corrosive to buried metals due to the low resistivity. Metal piping should be corrosion-protected or consideration should be given to using plastic piping instead of metal or plastic sleeving around the metal pipe.

Despite the minimum recommendation above, LGC is not a corrosion-engineering firm. Therefore, we recommend that you consult with a competent corrosion engineer and conduct additional testing (if required) to evaluate the actual corrosion potential of the site and to provide recommendations to reduce the corrosion potential with respect to the proposed improvements. The recommendations of the corrosion engineer may supersede the above requirements.

These recommendations are based on the current and previous samples of the subsurface soil or bedrock. The initiation of grading at the site could blend various soil types and import soil may be used locally. These changes made to the foundation soil could alter sulfate-content levels. Accordingly, it is recommended that additional testing be performed at the completion of grading.

17.0 PLAN REVIEWS AND CONSTRUCTION SERVICES

This report is a preliminary geotechnical investigation prepared for the exclusive use of **Mr. Shizao Zheng** to assist the project engineer and architect in the design of the proposed development. It is recommended that LGC be engaged to review the actual grading plans, foundation plans and final design drawings and specifications prior to construction. This is to document that the recommendations contained in this report have

been properly interpreted and/or are incorporated into the project specifications. LGC's review of such plans and those that might result from the recommended reviews may indicate that additional subsurface exploration, laboratory testing and analysis should be performed to address areas of concern. If LGC is not accorded the opportunity to review those documents, LGC cannot take responsibility for misinterpretation of our recommendations.

We recommend that LGC be retained to provide geotechnical engineering services during both the rough grading and construction phases of the work. This is to document compliance with the design, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

If the project plans change significantly (e.g., building loads or type of structures or grading), LGC should be retained to review our original design recommendations and applicability to the revised construction. If conditions are encountered during construction that appear to be different than those indicated in this report, this office should be notified immediately. Design and construction revisions may be required.

18.0 LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by engineers and geologists practicing in this or similar localities. The professional opinions contained herein were derived in accordance with current standards of practice for preliminary reports. Other warranties, expressed or implied, are not made or implied as to the conclusions and professional advice included in this report. The soil samples taken and submitted for laboratory testing, the observations made and the in-situ field testing performed are believed representative of the entire project; however, soil and geologic conditions can vary in characteristics between excavations, both laterally and vertically and may be different than our preliminary findings. If this occurs, the changed conditions must be evaluated by the project geotechnical engineer and engineering geologist and design adjustments may be required recommended.

This report is issued with the understanding that it is the responsibility of the owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of the project engineers and incorporated into the plans, and that necessary steps are taken to assure that the contractor and/or subcontractor properly implements the recommendations in the field during construction. The contractor and/or subcontractor should notify the owner if they consider any of the recommendations presented herein to be unsafe.

The conclusions and opinions contained in this report are based on the results of our scope of work and represent our professional judgment. The findings, conclusions and recommendations presented in this report are to be considered preliminary only and subject to confirmation by LGC during the construction process. Without this confirmation, this report is to be considered incomplete; and LGC will not assume any responsibility for its use.

The conclusions and opinions contained in this report are valid up to a period of 2 years from the date of this report. Changes in the conditions of a property can and do occur with the passage of time, whether those be because of natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate codes or standards may occur, whether those result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside LGC's control. Therefore, pending such changes made or if the scope of this project changes, an update of this report should be completed.

This report was not prepared for use by parties or projects other than those named or designed above and is otherwise considered insufficient for other parties or other purposes.

APPENDIX A

REFERENCES AND AERIAL PHOTOGRAPHS



APPENDIX A

References Reviewed



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- Sikand Engineering, Preliminary Grading Plan Tract No. 37557, Scale 1" = 80', Sheet 2 of 2. Dated June 13, 2018.
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- Southern California Earthquake Center, University of Southern California, Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines For Analyzing and Mitigating Liquefaction Hazards in California, March 1999.

Aerial Photographs Reviewed

<i>SOURCE</i>	<i>FLIGHT DATE</i>
Google Earth Pro.	2/2018
Google Earth Pro.	3/2017
Google Earth Pro.	10/2016
Google Earth Pro.	2/2016
Google Earth Pro.	4/2014
Google Earth Pro.	11/2013
Google Earth Pro.	11/2012
Google Earth Pro.	6/2012
Google Earth Pro.	3/2011
Google Earth Pro.	11/2009
Google Earth Pro.	6/2009
Google Earth Pro.	6/2008
Google Earth Pro.	12/2006
Google Earth Pro.	8/2006
Google Earth Pro.	1/2006
Google Earth Pro.	12/2005
Google Earth Pro.	10/2005
Google Earth Pro.	12/2004
Google Earth Pro.	1/2004
Google Earth Pro.	12/2003
Google Earth Pro.	11/2003
Google Earth Pro.	12/2002
Google Earth Pro.	6/2002
Google Earth Pro.	6/1994

APPENDIX B
EXPLORATORY TRENCH LOGS



Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH IT-1			
Project Number: G18-1648-10		Elevation: 1594'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit				
0.0'-2.0'	A	ARTIFICIAL FILL, UNDOCUMENTED: Silty SAND/Clayey SILT; dark reddish brown to blackish brown, dry to damp, medium dense/firm, very fine to medium grained with some coarse to very coarse grains, coarse to very coarse rock fragments, some pores, root hairs, desiccated, oxidation staining	Afu	SM/ML	Bulk @ 0'-2.0' Nuke @ 1.0'	4.3	107.5
2.0'-5.0'	B	OLDER ALLUVIAL FAN DEPOSITS: Silty SAND; greenish gray and reddish brown, dry, very dense, very fine to medium grained, with some coarse grains, pinhole pores, root hairs, stopped digging at 5.0 feet due to practical refusal	Qoa	SM			
GRAPHICAL REPRESENTATION: NORTH WALL				SURFACE SLOPE: LEVEL	TREND: N19E		
				<p>TOTAL DEPTH= 5.0 FEET NO GROUNDWATER ENCOUNTERED</p> 			

Project Name: SIKAND - MORENO VALLEY			Logged by: AJR			LOG OF TRENCH IT-2			
Project Number: G18-1648-10			Elevation: 1592'			Engineering Properties			
Equipment: BACKHOE			Location/Grid: SEE PLATE 1			USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit						
0.0'-5.5'	A	<u>ARTIFICIAL FILL, UNDOCUMENTED:</u> Silty SAND/Clayey SILT; dark reddish brown to blackish brown, dry to damp, medium dense, very fine to medium grained with some coarse to very coarse grains, coarse to very coarse rock fragments, some pores, root hairs, desiccated, pieces of concrete	Afu			SM/ML			
5.5'-6.5'	B	<u>OLDER ALLUVIAL FAN DEPOSITS:</u> Silty SAND; greenish gray and reddish brown, dry, very dense, very fine to medium grained, with some coarse grains, pinhole pores, root hairs, oxidation staining	Qoa			SM			
6.5'-10.5'	C	<u>BEDROCK (TONALITE):</u> Quartz diorite, grayish white, dry, hard to very hard, oxidation staining @10.0'; some moderately weathered sections at one bottom of trench	Kqdl						
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'			SURFACE SLOPE: LEVEL		TREND: N65E	
TOTAL DEPTH=10.5 FEET NO GROUNDWATER ENCOUNTERED									



Project Name: SIKAND - MORENO VALLEY			Logged by: AJR			LOG OF TRENCH TR-1			
Project Number: G18-1648-10			Elevation: 1638'			Engineering Properties			
Equipment: BACKHOE			Location/Grid: SEE PLATE 1			USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit						
0.0'-2.0'	A	Alluvium: Silty SAND; light reddish brown to gray brown, dry, loose, very fine to medium grained with some coarse grains, desiccated, root hairs and roots, pinhole pores and pores	Qal			SM			
2.0'-4.5'	B	BEDROCK (TONALITE): Quartz Diorite, grayish white to blackish orange, dry to damp, moderately hard to hard, fine to very coarse grained, oxidation staining, moderately to very weathered, friable @3.0' moderately weathered	Kqd						
GRAPHICAL REPRESENTATION: NORTH WALL			SCALE: 1" = 5'			SURFACE SLOPE: LEVEL		TREND: N30E	
								TOTAL DEPTH= 4.5 FEET NO GROUNDWATER ENCOUNTERED	

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-2			
Project Number: G18-1648-10		Elevation: 1640'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit				
0.0'-7.0'	A	<u>ALLUVIUM:</u> Silty SAND; dark reddish brown, dry to damp, loose to medium dense, very fine to medium grained with some coarse grains, occasional coarse rock fragments, pores, root-hairs @2.0'; medium dense, desiccated	Qal	SM	Bulk @ 5.0'-7.0'		
7.0'-8.0'	B	<u>BEDROCK (TONALITE):</u> Quartz Diorite, yellowish gray to blackish orange, dry to damp, hard, fine to very coarse grained, oxidation staining, manganese staining, slightly to moderately weathered, friable	Kqd				
GRAPHICAL REPRESENTATION: NORTH WALL				SURFACE SLOPE: LEVEL	TREND: N28W		
SCALE: 1" = 5'							
				TOTAL DEPTH= 8.0 FEET NO GROUNDWATER ENCOUNTERED			

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-3			
Project Number: G18-1648-10		Elevation: 1612'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit				
0.0'-1.0'	A	<u>TOPSOIL:</u> Silty SAND; light reddish brown to gray brown, dry, loose, very fine to medium grained with some coarse and very coarse grains, desiccated, root hairs and roots, pores		SM			
1.0'-2.5'	B	<u>OLDER ALLUVIUM FAN DEPOSITS:</u> Silty SAND; dark reddish brown, dry to damp, medium dense, very fine to coarse grained, clayey matrix, pores, root hairs, weathered	Qoa	SM			
2.5'-3.0'	C	Silty SAND; olive gray to dark reddish purple, dry to damp, very dense, very fine to coarse grained, with some very coarse grains, caliche stringers and coating, pores and pinhole pores, root hairs @ 3.0', stopped digging practical refusal		SM			
GRAPHICAL REPRESENTATION: NORTH WALL				SURFACE SLOPE: LEVEL		TREND: N60E	
				<p>TOTAL DEPTH= 3.0 FEET NO GROUNDWATER ENCOUNTERED</p>			

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-4			
Project Number: G18-1648-10		Elevation: 1608'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/4/18	Description:	Geologic Unit				
0.0'-0.5'	A	TOPSOIL: Silty SAND; reddish brown, loose, dry, very fine to medium grained with some coarse and very coarse grains, roots and root hairs, pores, desiccated		SM			
0.5'-4.5'	B	BEDROCK (TONALITE): Quartz Diorite, grayish white to blackish orange, dry to damp, moderately hard to hard, fine to very coarse grained, oxidation staining, very weathered, friable @ 2.0', moderately weathered	Kqd		Bulk @ 2.0'-4.5'		
GRAPHICAL REPRESENTATION: NORTH WALL				SURFACE SLOPE: LEVEL	TREND: N43E		
				TOTAL DEPTH= 3.0 FEET NO GROUNDWATER ENCOUNTERED			

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-5		
Project Number: G18-1648-10		Elevation: 1690'		Engineering Properties		
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)
Depth	Date: 9/6/18	Description:	Geologic Unit			Dry Density (pcf)
0.0'-1.5'	A	OLDER ALLUVIUM FAN DEPOSITS Silty SAND; dark reddish purple to dark red brown, dry, loose to medium dense, very fine to medium grained, with occasional coarse grains, pores and pinhole pores, roots and root hairs, oxidation staining, weathered, blocky	Qoa	SM	Bulk @ 0.0'-2.0'	
1.5'-3.0'	B	Silty SAND; reddish orange to light orange brown, dry, dense to very dense, very fine to medium grained with some coarse to very coarse grains, pinhole pores, root hairs, trace manganese staining				
3.0'-7.5'	C	BEDROCK (TONALITE); Quartz Diorite; grayish white to blackish orange, dry to damp, moderately hard to hard, fine to very coarse grained, oxidation staining, manganese staining, moderately weathered, friable @6.0'; slightly weathered, hard to very hard, practical refusal at 7.5'	Kqd			
GRAPHICAL REPRESENTATION: NORTH WALL				SURFACE SLOPE: LEVEL	TREND: N12W	
				TOTAL DEPTH = 7.5 FEET NO GROUNDWATER ENCOUNTERED		

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-6			
Project Number: G18-1648-10		Elevation: 1672'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/6/18	Description:	Geologic Unit				
0.0'-6.0'	A	<u>OLDER ALLUVIUM FAN DEPOSITS:</u> Silty SAND; dark brown to reddish brown, dry to damp, loose to medium dense, very fine to medium grained, with some coarse and very coarse grains, occasional coarse rock fragments, desiccated, pores, roots and root hairs, oxidation staining @3.0'; medium dense, trace rock fragments, caliche stringers and coating	Qoa	SM	Bulk @ 2.0'-6.0' Nuke @ 2.0'	2.6	106.2
6.0'-12.0'	B	Silty SAND; reddish brown, dry, medium dense to dense, very fine to medium grained, with occasional coarse and very coarse grains, trace rock fragments, desiccated, pores, roots and root hairs, caliche stringers and coating		SM			
12.0'-13.5'	C	<u>BEDROCK (TONALITE):</u> Quartz Diorite, blackish orange to yellow brown, dry to damp, hard, fine to very coarse grains, friable, oxidation staining, moderately weathered	Kqd				
GRAPHICAL REPRESENTATION: NORTH WALL				SURFACE SLOPE: LEVEL		TREND: N4E	
						TOTAL DEPTH=13.5 FEET NO GROUNDWATER ENCOUNTERED	

Project Name: SIKAND - MORENO VALLEY		Logged by: AJR		LOG OF TRENCH TR-8			
Project Number: G18-1648-10		Elevation: 1612'		Engineering Properties			
Equipment: BACKHOE		Location/Grid: SEE PLATE 1		USCS	Sample No.	Moisture (%)	Dry Density (pcf)
Depth	Date: 9/8/18	Description:	Geologic Unit				
0.0'-2.0'	A	<u>TOPSOIL:</u> Silty SAND; light reddish brown to gray brown, dry, loose, very fine to medium grained with some coarse and very coarse grains, desiccated, root hairs and roots, pores		SM			
2.0'-3.0'	B	<u>OLDER ALLUVIUM FAN DEPOSITS:</u> Silty SAND; dark reddish purple to olive gray, dry to damp, dense to very dense, very fine to coarse grained, clayey matrix, pores, root hairs, caliche stringers and coating, weathered	Qoa	SM	Nuke @ 2.5'	5.8	105.7
3.0'-7.0'	C	Silty SAND/Clayey SILT; dark brown to olive brown, damp, dense to very dense, very fine to medium grained with some coarse grains, occasional coarse and very coarse rock fragments, clayey matrix, oxidation staining, difficulty digging		SM/ML	Bulk @ 4.0'-6.0' Nuke @ 7.0'	8.3	117.8
GRAPHICAL REPRESENTATION: NORTH WALL				SURFACE SLOPE: LEVEL		TREND: N62E	
				TOTAL DEPTH= 7.0 FEET NO GROUNDWATER ENCOUNTERED			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

APPENDIX B

Field Exploration

B-1 General

Geologic mapping of the site was performed by LGC's personnel. The locations of the exploratory excavations were chosen to obtain site and trench specific subsurface information needed to achieve the objective for this investigation.

A visual survey was conducted to verify that the proposed excavations would not encounter any subsurface utility lines. Underground utilities were not encountered during the field exploratory program.

B-2 Excavation and Sampling

Surface geologic mapping of the site and accessible surrounding areas was completed by a geologist from this firm during September 2018, utilizing the referenced Conceptual Grading Plan Tract Map No. 37557 for plotting geologic units. This information is plotted on the enclosed Geotechnical Map (Plate 1).

Ten (10) exploratory trenches, TR-1 through TR-8 and IT-1 through IT-2, were excavated with a backhoe on September 4, 2018 and September 6, 2018 to depths of approximately 3.0 to 13.5 feet below the existing ground surface. The trenches were excavated to evaluate the general characteristics of the subsurface geologic/geotechnical conditions at the subject site, which consisted of classification of site soil, determination of groundwater elevations (if present), and collection of representative soil and bedrock samples.

Prior to our subsurface work, an underground utilities clearance was obtained from Underground Service Alert of Southern California. At the conclusion of the subsurface investigation, test pits were backfilled with native materials. Minor settlement of the backfill soil may occur over time.

During our subsurface investigation, representative bulk samples were retained for laboratory testing. Laboratory testing was performed on selected representative samples of onsite soil and/or bedrock materials and included maximum dry density and optimum water content, expansion index, sulfate content, chloride content, pH, resistivity, grain size analysis, and direct shear. A discussion of the tests performed and a summary of the results are presented in Appendix C. Moisture and density test results are presented on the trench logs which are presented on the following pages.

B-3 Miscellaneous

The trench logs describe the earth materials encountered, sampling method used, and the results of field and laboratory tests. The logs also show the test pit number, date of completion, and the name of the logger. A geologist logged the trenches in accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) ASTM D2488-93. The boundaries between soil types shown on the logs are approximate and the transition between different soil layers may be gradual. The logs of the trenches are presented on the following pages.

APPENDIX C

LABORATORY TESTING PROCEDURES AND TEST RESULTS



APPENDIX C

Laboratory Testing Procedures and Test Results

The laboratory testing program was directed towards providing quantitative data relating to the relevant engineering properties of the soil. Samples considered representative of site conditions were tested in general accordance with American Society for Testing and Materials (ASTM) procedure and/or California Test Methods (CTM), where applicable. The following summary is a brief outline of the test type and a table summarizing the test results.

Soil Classification: Soil were classified according the Unified Soil Classification System (USCS) in accordance with ASTM Test Methods D2487 and D2488. The soil classifications (or group symbol) are shown on the laboratory test data, and boring logs.

Maximum Dry Density Tests: The maximum dry density and optimum water content of typical materials were determined in accordance with ASTM test method D1557. The test results are presented in the table below:

SAMPLE LOCATION	SAMPLE DESCRIPTION (USCS)	MAXIMUM DRY DENSITY (% by weight)	OPTIMUM WATER CONTENT (%)
IT-1 @ 0-2'	Silty SAND/Clayey SILT (SM/ML)	135.9	7.0
TR-4 @ 2-4'	Bedrock; Quartz Diorite	133.2	7.0
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	128.3	9.0

Expansion Index: The expansion potential of a selected sample was evaluated by the Expansion Index Test, U.B.C. Standard No. 18-2 and/or ASTM test method D4829. Specimens are molded under a given compactive energy at or near the optimum moisture content and approximately 50 percent saturation or approximately 90 percent relative compaction. The prepared 1-inch thick by 4-inch diameter specimens are loaded to an equivalent 144 psf surcharge and are inundated with tap water until volumetric equilibrium is reached. The results of these tests are presented in the table below:

SAMPLE LOCATION	SAMPLE DESCRIPTION (USCS)	EXPANSION INDEX	EXPANSION POTENTIAL*
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	19	Very Low

*Per ASTM D4829

Soluble Sulfates: The soluble sulfate content of selected samples was determined by standard geotechnical methods (CTM 417). The soluble sulfate content is used to determine the appropriate cement type and maximum water-cement ratios. The test results are presented in the table below:

SAMPLE LOCATION	SAMPLE DESCRIPTION (USCS)	SULFATE CONTENT (ppm)	SULFATE EXPOSURE*
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	Non-Detect	Negligible

*Per ACI 318R-05 Table 4.3.1

Chloride Content: Chloride content was tested with CTM 422. The results are presented below:

SAMPLE LOCATION	SAMPLE DESCRIPTION (USCS)	CHLORIDE CONTENT (ppm)
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	128

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed with CTM 643. The results are presented in the table below:

<i>SAMPLE LOCATION</i>	<i>SAMPLE DESCRIPTION (USCS)</i>	<i>pH</i>	<i>MINIMUM RESISTIVITY (ohm-cm)</i>
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	7.5	1,100

Direct Shear: Direct shear tests were performed on selected remolded samples, which were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box, and reloading the sample, pore pressures set up in the sample due to the transfer were allowed to dissipate for a period of approximately 1 hour prior to application of shearing force. The samples were tested under various normal loads, a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of less than 0.001 to 0.5 inch per minute (depending upon the soil type). The graphical test results are presented in the table below:

<i>SAMPLE LOCATION</i>	<i>SAMPLE DESCRIPTION</i>	<i>ANGLE OF INTERNAL FRICTION (degrees)</i>	<i>COHESION (psf)</i>
TR-8 @ 4-6'	Silty SAND/Clayey SILT (SM/ML)	36	20

APPENDIX D

GENERAL EARTHWORK AND GRADING SPECIFICATIONS



APPENDIX D

General Earthwork and Grading Specifications

1.0 General

1.1 Intent: These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record: Prior to commencement of work, the owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to confirm that the attained level of compaction is being accomplished as specified. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor: The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the project plans and specifications. The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "equipment" of work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading.

The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory

conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified. It is the contractor's sole responsibility to provide proper fill compaction.

2.0 Preparation of Areas to be Filled

- 2.1 Clearing and Grubbing:** Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 10 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed. The contractor is responsible for all hazardous waste relating to his work. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Client should acquire the services of a qualified environmental assessor.

- 2.2 Processing:** Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soil are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.
- 2.3 Overexcavation:** In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.
- 2.4 Benching:** Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.
- 2.5 Evaluation/Acceptance of Fill Areas:** All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

- 3.1 General:** Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soil of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soil to achieve satisfactory fill material.
- 3.2 Oversize:** Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.
- 3.3 Import:** If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

- 4.1 Fill Layers:** Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.
- 4.2 Fill Moisture Conditioning:** Fill soil shall be watered, dried back, blended, and/or mixed, as necessary to attain relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557-91).
- 4.3 Compaction of Fill:** After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557-91). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.
- 4.4 Compaction of Fill Slopes:** In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557-91.
- 4.5 Compaction Testing:** Field tests for moisture content and relative compaction of the fill soil shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).
- 4.6 Frequency of Compaction Testing:** Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soil embankment. In addition, as a

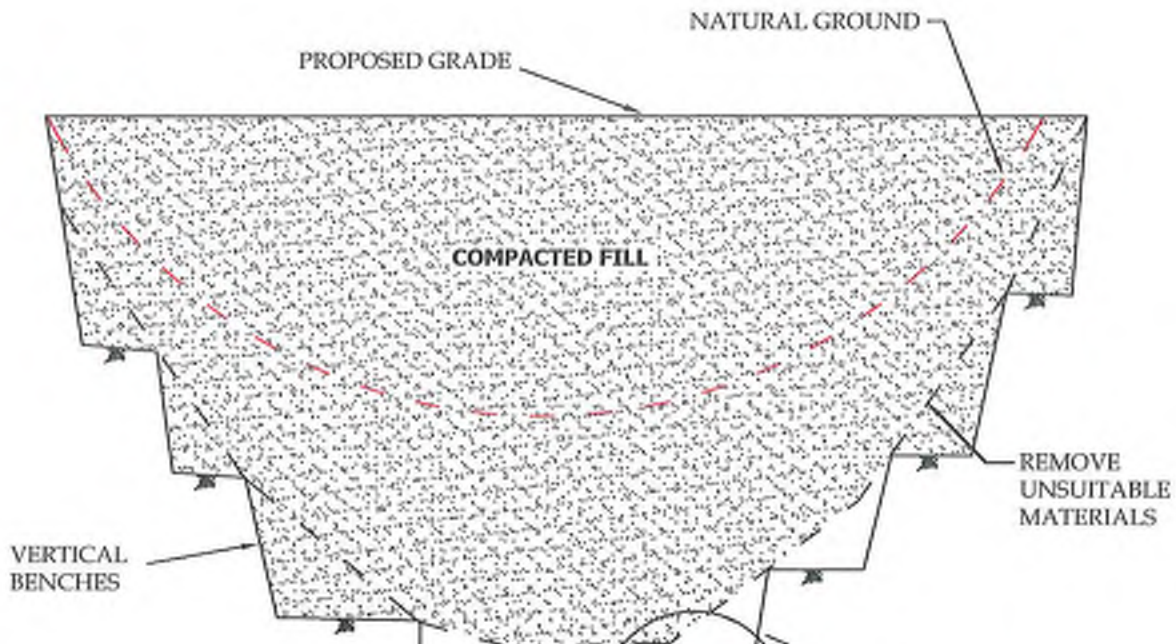
guideline, at least one (1) test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations:

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two (2) grade stakes within a horizontal distance of 100 feet and vertically less than 5 feet apart from potential test locations shall be provided.

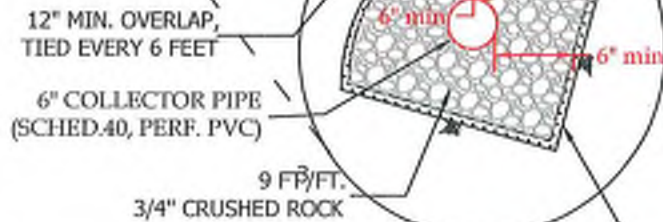
5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s) and grading plan. The Geotechnical Consultant may recommend additional subdrain and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

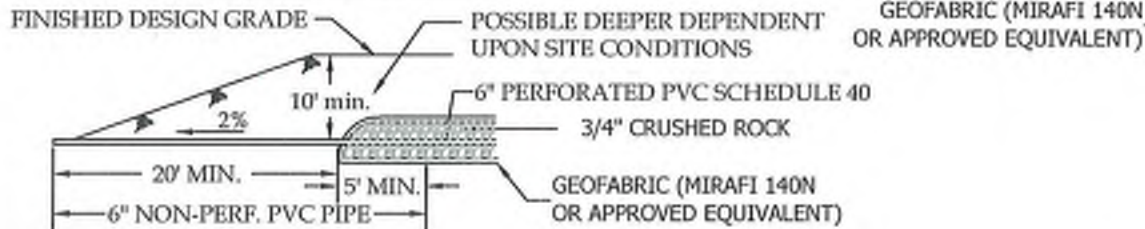


Notes:

- 1) Continuous runs in excess of 500' shall use 8" diameter pipe.
- 2) Final 20' of pipe at outlet shall be non-perforated and backfilled with fine-grained material.

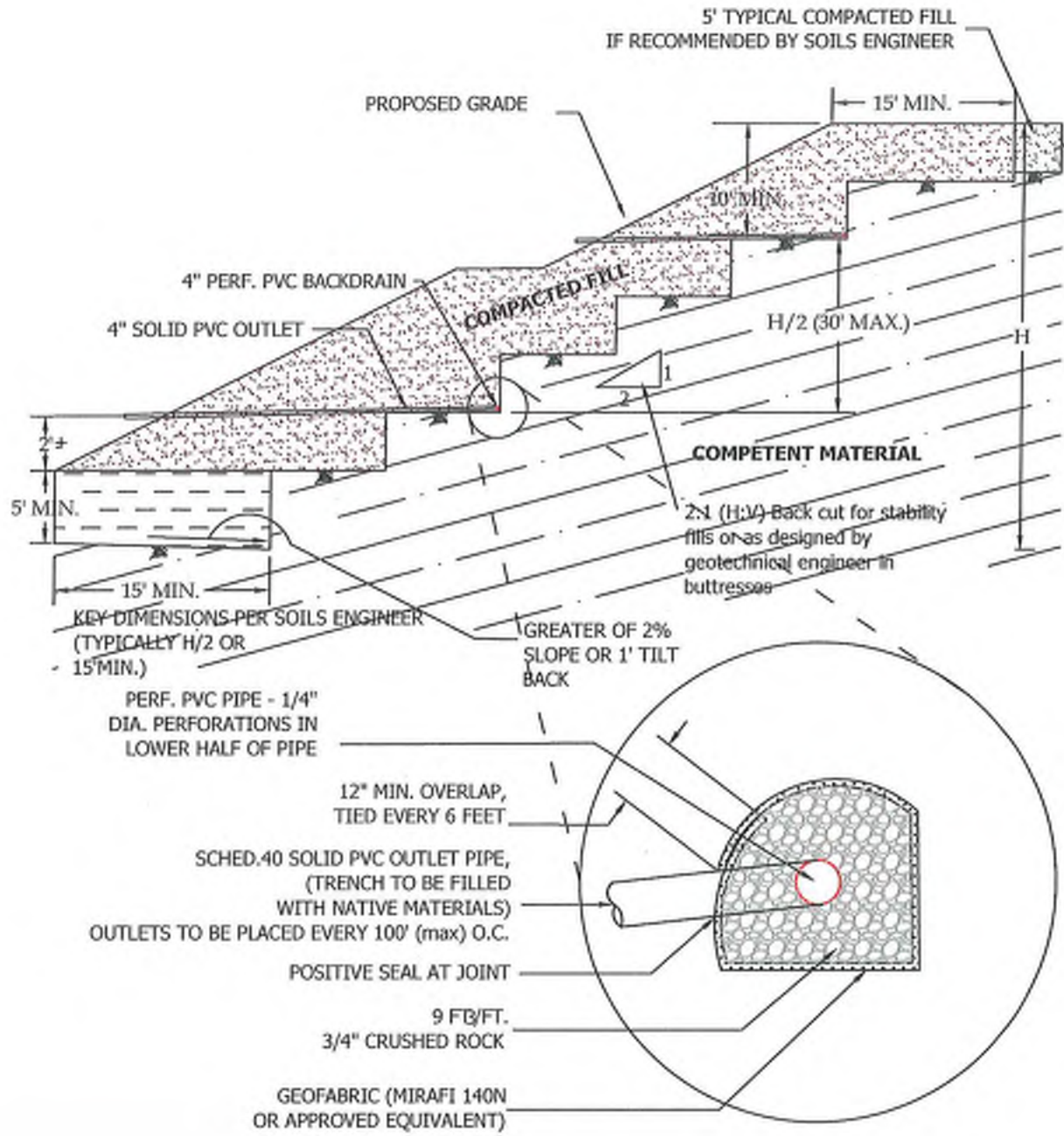


OUTLET DETAIL



CANYON & STREET SUBDRAINS

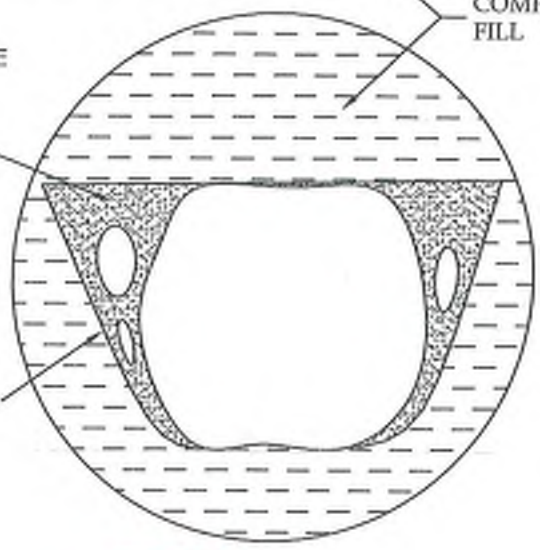
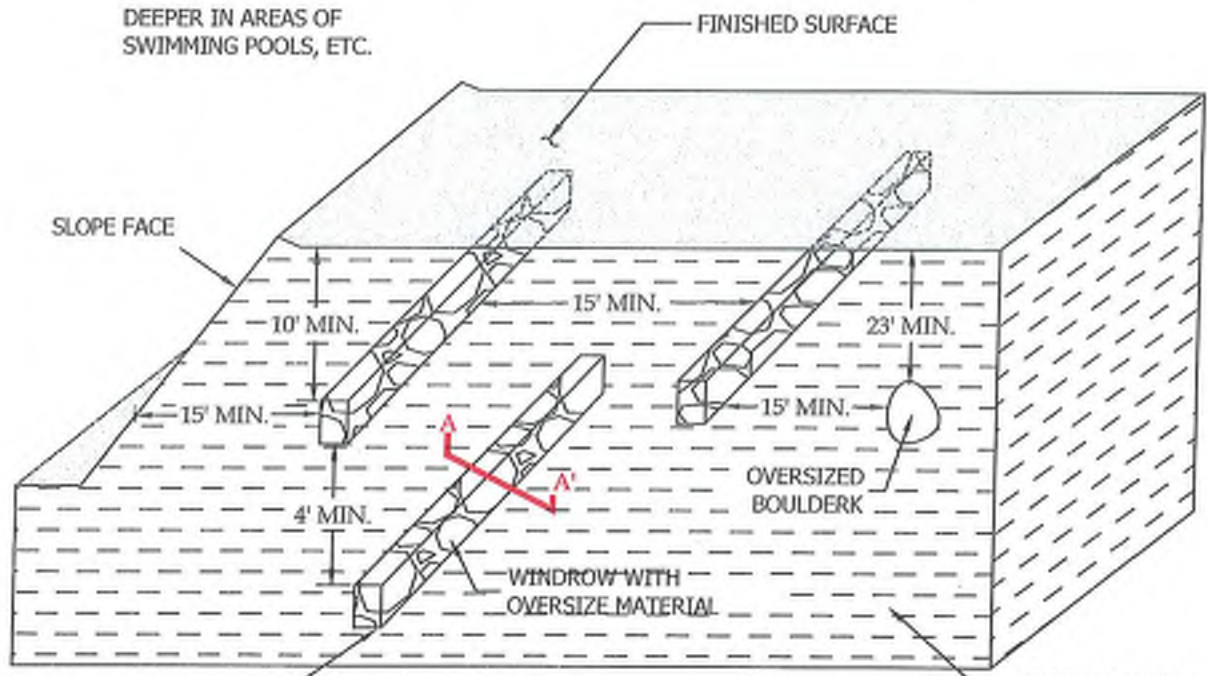
Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



TYPICAL BUTTRESS/ STABILIZATION FILL DETAIL

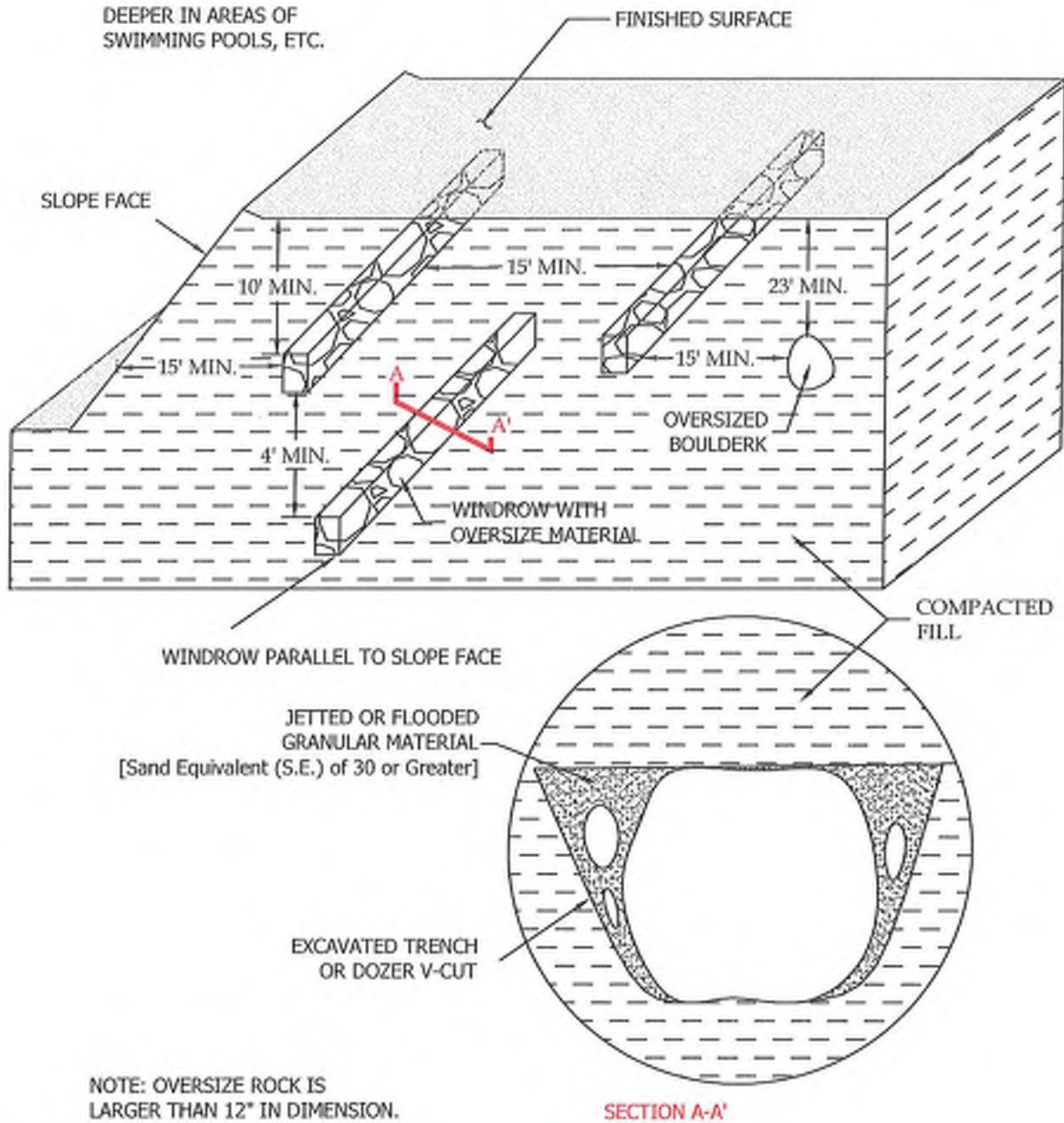


NOTE: OVERSIZE ROCK IS LARGER THAN 12" IN DIMENSION.

SECTION A-A'



OVERSIZE ROCK DISPOSAL

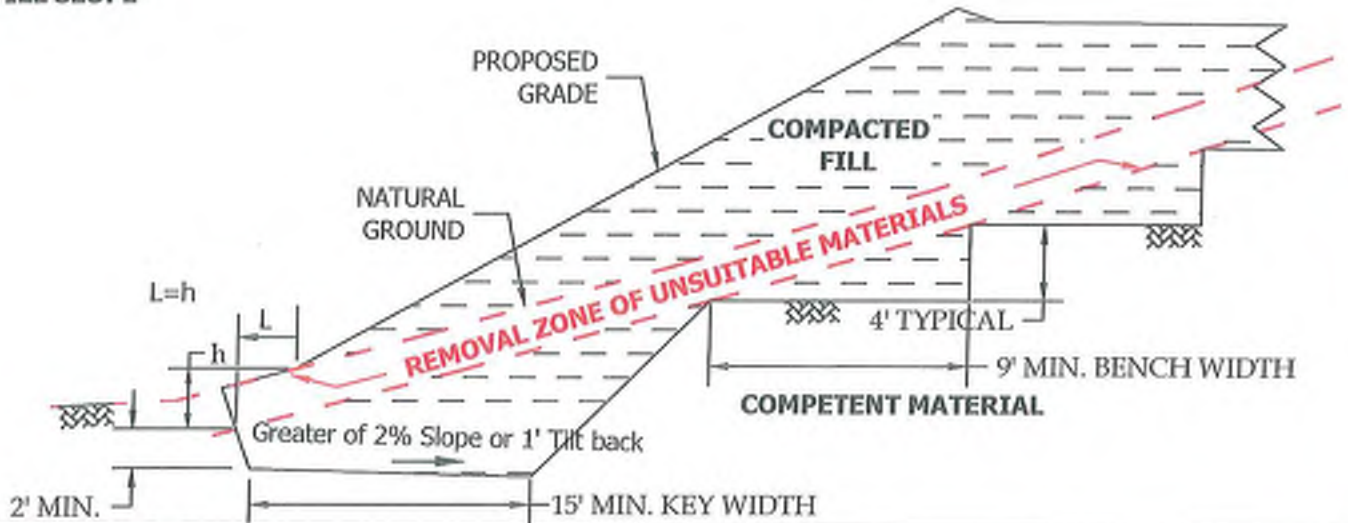


Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

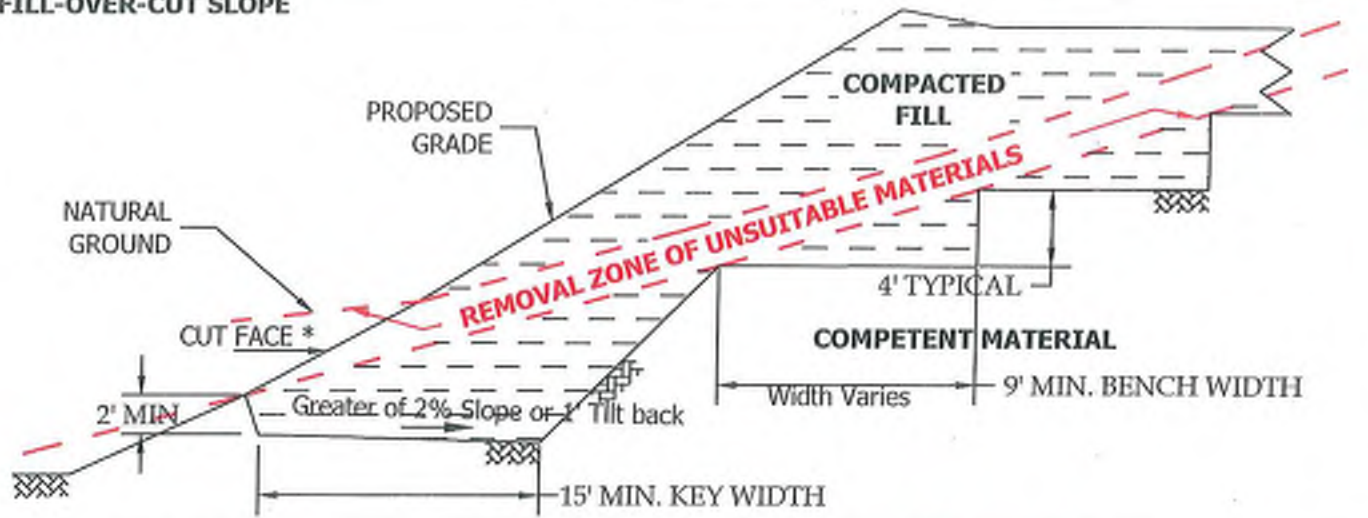


OVERSIZE ROCK DISPOSAL

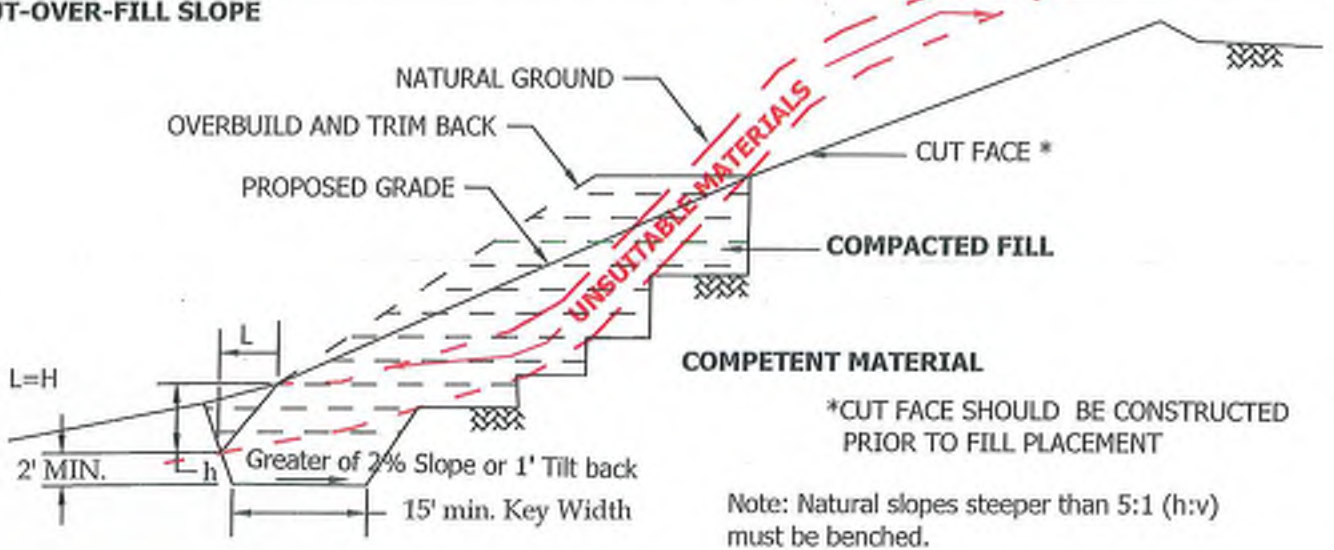
FILL SLOPE



FILL-OVER-CUT SLOPE



CUT-OVER-FILL SLOPE



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



KEYING AND BENCHING

Appendix 4: Historical Site Conditions

None Provided at this time

Phase I Environmental Site Assessment or Other Information on Past Site Use

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

See pages 11 thru 16 of the Preliminary Project Specific WQMP.

Per project geotechnical report and infiltration report, the site does not meet minimum infiltration rate of 1.6 in/hr. Thus, infiltration is not a feasible treatment option.

Per Section D.2 Harvest and Use is not a possibility as the site does not meet minimum requirements for landscape or toilet use.

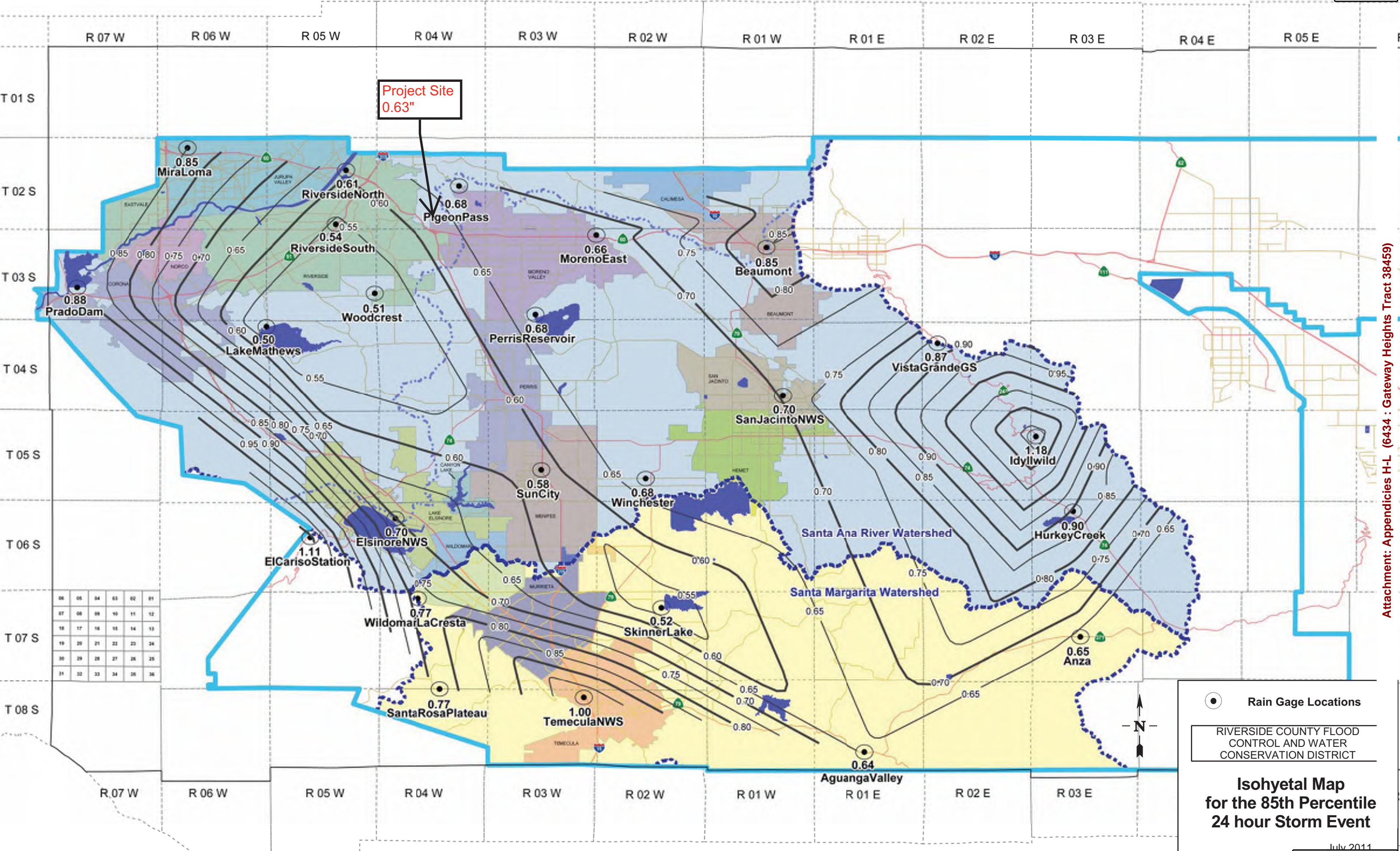
DMA C – A portion of the main entrance to the site (Street A) and Morton Road is not able to be treated. The grades and conditions of the road in this area do not allow for the collection and treatment of the runoff, as the site sits well above grade from Morton Road. Also, the project is at a highpoint in Morton Rd so any acceptance and routing of street flow should be further downstream along Morton Road. The areas around Morton Road, including any future right of way, is also unable to provide for treatment as the grades in the area fall off significantly to the southwest. Runoff from this area will continue in the existing condition, by flowing into the natural channel southwest of the road.

At 0.3 acres, DMA C represents a negligible percentage of the impervious area at less than 5%.

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



Project Site
0.63"

06	05	04	03	02	01
07	06	05	04	03	02
08	07	06	05	04	03
09	08	07	06	05	04
10	09	08	07	06	05
11	10	09	08	07	06
12	11	10	09	08	07
13	12	11	10	09	08
14	13	12	11	10	09
15	14	13	12	11	10
16	15	14	13	12	11
17	16	15	14	13	12
18	17	16	15	14	13
19	18	17	16	15	14
20	19	18	17	16	15
21	20	19	18	17	16
22	21	20	19	18	17
23	22	21	20	19	18
24	23	22	21	20	19
25	24	23	22	21	20
26	25	24	23	22	21
27	26	25	24	23	22
28	27	26	25	24	23
29	28	27	26	25	24
30	29	28	27	26	25
31	30	29	28	27	26
32	31	30	29	28	27
33	32	31	30	29	28
34	33	32	31	30	29
35	34	33	32	31	30
36	35	34	33	32	31

● Rain Gage Locations

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Isohyetal Map for the 85th Percentile 24 hour Storm Event

July 2011

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Santa Ana Watershed - BMP Design Volume, V_{BMP}
 (Rev. 10-2011)

Legend: Required Entries
 Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**.)*

Company Name: UEG Date: 11/10/2021
 Designed by: CSM Case No: _____
 Company Project Number/Name: _____ Gateway Heights: _____

BMP Identification

BMP NAME / ID: DMA B - To Basin B
Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E $D_{85} =$ 0.63 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
B	474804	Mixed Surface Types	0.65	0.45	213271.6			
474804		Total			213271.6	0.63	11196.8	47219

Notes:

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Bioretention Facility - Design Procedure		BMP ID Basin A	Legend:	Required Entries
				Calculated Cells
Company Name:	United Engineering Group		Date:	3/23/2022
Designed by:	Chris Morgan	County/City Case No.:		PEN21-00 66
Design Volume				
Enter the area tributary to this feature			A _T =	4 acres
Enter V _{BMP} determined from Section 2.1 of this Handbook			V _{BMP} =	4,109 ft ³
Type of Bioretention Facility Design				
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> No side slopes required (perpendicular to parking space or Planter Boxes)				
Bioretention Facility Surface Area				
Depth of Soil Filter Media Layer			d _S =	3.0 ft
Top Width of Bioretention Facility, excluding curb			w _T =	21.8 ft
Total Effective Depth, d _E d _E = (0.3) x d _S + (0.4) x 1 - (0.7/w _T) + 0.5			d _E =	1.77 ft
Minimum Surface Area, A _m A _M (ft ²) = $\frac{V_{BMP} (ft^3)}{d_E (ft)}$			A _M =	2,325 ft ²
Proposed Surface Area			A =	2,335 ft ²
Bioretention Facility Properties				
Side Slopes in Bioretention Facility			z =	4 :1
Diameter of Underdrain				6 inches
Longitudinal Slope of Site (3% maximum)				0.5 %
6" Check Dam Spacing				0 feet
Describe Vegetation:			Other	
Notes: Ornamental Landscaping with Mulch to be used. Deisgn at Final.				

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Bioretention Facility - Design Procedure		BMP ID Basin B	Legend:	Required Entries
				Calculated Cells
Company Name:	United Engineering Group		Date:	3/23/2022
Designed by:	Chris Morgan	County/City Case No.:		PEN21-00 66
Design Volume				
Enter the area tributary to this feature			A _T =	10.9 acres
Enter V _{BMP} determined from Section 2.1 of this Handbook			V _{BMP} =	11,197 ft ³
Type of Bioretention Facility Design				
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> No side slopes required (perpendicular to parking space or Planter Boxes)				
Bioretention Facility Surface Area				
Depth of Soil Filter Media Layer			d _S =	3.0 ft
Top Width of Bioretention Facility, excluding curb			w _T =	56.0 ft
Total Effective Depth, d _E d _E = (0.3) x d _S + (0.4) x 1 - (0.7/w _T) + 0.5			d _E =	1.79 ft
Minimum Surface Area, A _m A _M (ft ²) = $\frac{V_{BMP} (ft^3)}{d_E (ft)}$			A _M =	6,265 ft ²
Proposed Surface Area			A =	8,339 ft ²
Bioretention Facility Properties				
Side Slopes in Bioretention Facility			z =	4 :1
Diameter of Underdrain				6 inches
Longitudinal Slope of Site (3% maximum)				0.5 %
6" Check Dam Spacing				0 feet
Describe Vegetation:			Other	
Notes: Ornamental Landscaping with Mulch to be used. Deisgn at Final.				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33preb242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Predevelopment Conditions
Unit Hydrograph Runoff
Area B

--
Drainage Area = 8.04(Ac.) = 0.013 Sq. Mi.
0.013 Drainage Area for Depth-Area Areal Adjustment = 8.04(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 1083.00(Ft.)
Length along longest watercourse measured to centroid = 476.00
Length along longest watercourse = 0.205 Mi.
Mi. Length along longest watercourse measured to centroid = 0.090

Difference in elevation = 110.00(Ft.)
Slope along watercourse = 536.2881 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.064 Hr.
Lag time = 3.83 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.53 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.015	(0.352)	0.014	0.002
2	0.17	0.07	0.015	(0.350)	0.014	0.002
3	0.25	0.07	0.015	(0.349)	0.014	0.002
4	0.33	0.10	0.023	(0.348)	0.021	0.002
5	0.42	0.10	0.023	(0.346)	0.021	0.002
6	0.50	0.10	0.023	(0.345)	0.021	0.002
7	0.58	0.10	0.023	(0.344)	0.021	0.002
8	0.67	0.10	0.023	(0.342)	0.021	0.002
9	0.75	0.10	0.023	(0.341)	0.021	0.002
10	0.83	0.13	0.031	(0.340)	0.028	0.003
11	0.92	0.13	0.031	(0.338)	0.028	0.003
12	1.00	0.13	0.031	(0.337)	0.028	0.003
13	1.08	0.10	0.023	(0.336)	0.021	0.002
14	1.17	0.10	0.023	(0.334)	0.021	0.002
15	1.25	0.10	0.023	(0.333)	0.021	0.002
16	1.33	0.10	0.023	(0.332)	0.021	0.002
17	1.42	0.10	0.023	(0.330)	0.021	0.002
18	1.50	0.10	0.023	(0.329)	0.021	0.002
19	1.58	0.10	0.023	(0.328)	0.021	0.002
20	1.67	0.10	0.023	(0.326)	0.021	0.002
21	1.75	0.10	0.023	(0.325)	0.021	0.002
22	1.83	0.13	0.031	(0.324)	0.028	0.003
23	1.92	0.13	0.031	(0.322)	0.028	0.003
24	2.00	0.13	0.031	(0.321)	0.028	0.003
25	2.08	0.13	0.031	(0.320)	0.028	0.003
26	2.17	0.13	0.031	(0.318)	0.028	0.003
27	2.25	0.13	0.031	(0.317)	0.028	0.003
28	2.33	0.13	0.031	(0.316)	0.028	0.003
29	2.42	0.13	0.031	(0.315)	0.028	0.003
30	2.50	0.13	0.031	(0.313)	0.028	0.003
31	2.58	0.17	0.039	(0.312)	0.035	0.004
32	2.67	0.17	0.039	(0.311)	0.035	0.004
33	2.75	0.17	0.039	(0.310)	0.035	0.004
34	2.83	0.17	0.039	(0.308)	0.035	0.004
35	2.92	0.17	0.039	(0.307)	0.035	0.004
36	3.00	0.17	0.039	(0.306)	0.035	0.004
37	3.08	0.17	0.039	(0.304)	0.035	0.004
38	3.17	0.17	0.039	(0.303)	0.035	0.004
39	3.25	0.17	0.039	(0.302)	0.035	0.004
40	3.33	0.17	0.039	(0.301)	0.035	0.004
41	3.42	0.17	0.039	(0.299)	0.035	0.004
42	3.50	0.17	0.039	(0.298)	0.035	0.004
43	3.58	0.17	0.039	(0.297)	0.035	0.004
44	3.67	0.17	0.039	(0.296)	0.035	0.004
45	3.75	0.17	0.039	(0.294)	0.035	0.004
46	3.83	0.20	0.046	(0.293)	0.042	0.005
47	3.92	0.20	0.046	(0.292)	0.042	0.005
48	4.00	0.20	0.046	(0.291)	0.042	0.005
49	4.08	0.20	0.046	(0.289)	0.042	0.005
50	4.17	0.20	0.046	(0.288)	0.042	0.005
51	4.25	0.20	0.046	(0.287)	0.042	0.005
52	4.33	0.23	0.054	(0.286)	0.049	0.005
53	4.42	0.23	0.054	(0.285)	0.049	0.005
54	4.50	0.23	0.054	(0.283)	0.049	0.005
55	4.58	0.23	0.054	(0.282)	0.049	0.005
56	4.67	0.23	0.054	(0.281)	0.049	0.005

57	4.75	0.23	0.054	(0.280)	0.049	0.005
58	4.83	0.27	0.062	(0.278)	0.056	0.006
59	4.92	0.27	0.062	(0.277)	0.056	0.006
60	5.00	0.27	0.062	(0.276)	0.056	0.006
61	5.08	0.20	0.046	(0.275)	0.042	0.005
62	5.17	0.20	0.046	(0.274)	0.042	0.005
63	5.25	0.20	0.046	(0.272)	0.042	0.005
64	5.33	0.23	0.054	(0.271)	0.049	0.005
65	5.42	0.23	0.054	(0.270)	0.049	0.005
66	5.50	0.23	0.054	(0.269)	0.049	0.005
67	5.58	0.27	0.062	(0.268)	0.056	0.006
68	5.67	0.27	0.062	(0.267)	0.056	0.006
69	5.75	0.27	0.062	(0.265)	0.056	0.006
70	5.83	0.27	0.062	(0.264)	0.056	0.006
71	5.92	0.27	0.062	(0.263)	0.056	0.006
72	6.00	0.27	0.062	(0.262)	0.056	0.006
73	6.08	0.30	0.069	(0.261)	0.063	0.007
74	6.17	0.30	0.069	(0.260)	0.063	0.007
75	6.25	0.30	0.069	(0.258)	0.063	0.007
76	6.33	0.30	0.069	(0.257)	0.063	0.007
77	6.42	0.30	0.069	(0.256)	0.063	0.007
78	6.50	0.30	0.069	(0.255)	0.063	0.007
79	6.58	0.33	0.077	(0.254)	0.069	0.008
80	6.67	0.33	0.077	(0.253)	0.069	0.008
81	6.75	0.33	0.077	(0.252)	0.069	0.008
82	6.83	0.33	0.077	(0.250)	0.069	0.008
83	6.92	0.33	0.077	(0.249)	0.069	0.008
84	7.00	0.33	0.077	(0.248)	0.069	0.008
85	7.08	0.33	0.077	(0.247)	0.069	0.008
86	7.17	0.33	0.077	(0.246)	0.069	0.008
87	7.25	0.33	0.077	(0.245)	0.069	0.008
88	7.33	0.37	0.085	(0.244)	0.076	0.008
89	7.42	0.37	0.085	(0.243)	0.076	0.008
90	7.50	0.37	0.085	(0.241)	0.076	0.008
91	7.58	0.40	0.093	(0.240)	0.083	0.009
92	7.67	0.40	0.093	(0.239)	0.083	0.009
93	7.75	0.40	0.093	(0.238)	0.083	0.009
94	7.83	0.43	0.100	(0.237)	0.090	0.010
95	7.92	0.43	0.100	(0.236)	0.090	0.010
96	8.00	0.43	0.100	(0.235)	0.090	0.010
97	8.08	0.50	0.116	(0.234)	0.104	0.012
98	8.17	0.50	0.116	(0.233)	0.104	0.012
99	8.25	0.50	0.116	(0.232)	0.104	0.012
100	8.33	0.50	0.116	(0.230)	0.104	0.012
101	8.42	0.50	0.116	(0.229)	0.104	0.012
102	8.50	0.50	0.116	(0.228)	0.104	0.012
103	8.58	0.53	0.124	(0.227)	0.111	0.012
104	8.67	0.53	0.124	(0.226)	0.111	0.012
105	8.75	0.53	0.124	(0.225)	0.111	0.012
106	8.83	0.57	0.131	(0.224)	0.118	0.013
107	8.92	0.57	0.131	(0.223)	0.118	0.013
108	9.00	0.57	0.131	(0.222)	0.118	0.013
109	9.08	0.63	0.147	(0.221)	0.132	0.015
110	9.17	0.63	0.147	(0.220)	0.132	0.015
111	9.25	0.63	0.147	(0.219)	0.132	0.015
112	9.33	0.67	0.154	(0.218)	0.139	0.015
113	9.42	0.67	0.154	(0.217)	0.139	0.015
114	9.50	0.67	0.154	(0.216)	0.139	0.015
115	9.58	0.70	0.162	(0.215)	0.146	0.016
116	9.67	0.70	0.162	(0.214)	0.146	0.016

117	9.75	0.70	0.162	(0.213)	0.146	0.016
118	9.83	0.73	0.170	(0.212)	0.153	0.017
119	9.92	0.73	0.170	(0.211)	0.153	0.017
120	10.00	0.73	0.170	(0.210)	0.153	0.017
121	10.08	0.50	0.116	(0.208)	0.104	0.012
122	10.17	0.50	0.116	(0.207)	0.104	0.012
123	10.25	0.50	0.116	(0.206)	0.104	0.012
124	10.33	0.50	0.116	(0.205)	0.104	0.012
125	10.42	0.50	0.116	(0.204)	0.104	0.012
126	10.50	0.50	0.116	(0.203)	0.104	0.012
127	10.58	0.67	0.154	(0.202)	0.139	0.015
128	10.67	0.67	0.154	(0.201)	0.139	0.015
129	10.75	0.67	0.154	(0.201)	0.139	0.015
130	10.83	0.67	0.154	(0.200)	0.139	0.015
131	10.92	0.67	0.154	(0.199)	0.139	0.015
132	11.00	0.67	0.154	(0.198)	0.139	0.015
133	11.08	0.63	0.147	(0.197)	0.132	0.015
134	11.17	0.63	0.147	(0.196)	0.132	0.015
135	11.25	0.63	0.147	(0.195)	0.132	0.015
136	11.33	0.63	0.147	(0.194)	0.132	0.015
137	11.42	0.63	0.147	(0.193)	0.132	0.015
138	11.50	0.63	0.147	(0.192)	0.132	0.015
139	11.58	0.57	0.131	(0.191)	0.118	0.013
140	11.67	0.57	0.131	(0.190)	0.118	0.013
141	11.75	0.57	0.131	(0.189)	0.118	0.013
142	11.83	0.60	0.139	(0.188)	0.125	0.014
143	11.92	0.60	0.139	(0.187)	0.125	0.014
144	12.00	0.60	0.139	(0.186)	0.125	0.014
145	12.08	0.83	0.193	(0.185)	0.174	0.019
146	12.17	0.83	0.193	(0.184)	0.174	0.019
147	12.25	0.83	0.193	(0.183)	0.174	0.019
148	12.33	0.87	0.201	(0.182)	0.181	0.020
149	12.42	0.87	0.201	(0.182)	0.181	0.020
150	12.50	0.87	0.201	0.181	(0.181)	0.020
151	12.58	0.93	0.216	0.180	(0.195)	0.036
152	12.67	0.93	0.216	0.179	(0.195)	0.037
153	12.75	0.93	0.216	0.178	(0.195)	0.038
154	12.83	0.97	0.224	0.177	(0.201)	0.047
155	12.92	0.97	0.224	0.176	(0.201)	0.048
156	13.00	0.97	0.224	0.175	(0.201)	0.049
157	13.08	1.13	0.262	0.174	(0.236)	0.088
158	13.17	1.13	0.262	0.173	(0.236)	0.089
159	13.25	1.13	0.262	0.173	(0.236)	0.090
160	13.33	1.13	0.262	0.172	(0.236)	0.091
161	13.42	1.13	0.262	0.171	(0.236)	0.092
162	13.50	1.13	0.262	0.170	(0.236)	0.093
163	13.58	0.77	0.178	(0.169)	0.160	0.018
164	13.67	0.77	0.178	(0.168)	0.160	0.018
165	13.75	0.77	0.178	(0.167)	0.160	0.018
166	13.83	0.77	0.178	(0.166)	0.160	0.018
167	13.92	0.77	0.178	(0.166)	0.160	0.018
168	14.00	0.77	0.178	(0.165)	0.160	0.018
169	14.08	0.90	0.208	0.164	(0.188)	0.044
170	14.17	0.90	0.208	0.163	(0.188)	0.045
171	14.25	0.90	0.208	0.162	(0.188)	0.046
172	14.33	0.87	0.201	0.161	(0.181)	0.039
173	14.42	0.87	0.201	0.161	(0.181)	0.040
174	14.50	0.87	0.201	0.160	(0.181)	0.041
175	14.58	0.87	0.201	0.159	(0.181)	0.042
176	14.67	0.87	0.201	0.158	(0.181)	0.043

177	14.75	0.87	0.201		0.157	(0.181)	0.043
178	14.83	0.83	0.193		0.157	(0.174)	0.036
179	14.92	0.83	0.193		0.156	(0.174)	0.037
180	15.00	0.83	0.193		0.155	(0.174)	0.038
181	15.08	0.80	0.185		0.154	(0.167)	0.031
182	15.17	0.80	0.185		0.153	(0.167)	0.032
183	15.25	0.80	0.185		0.153	(0.167)	0.033
184	15.33	0.77	0.178		0.152	(0.160)	0.026
185	15.42	0.77	0.178		0.151	(0.160)	0.027
186	15.50	0.77	0.178		0.150	(0.160)	0.027
187	15.58	0.63	0.147	(0.149)		0.132	0.015
188	15.67	0.63	0.147	(0.149)		0.132	0.015
189	15.75	0.63	0.147	(0.148)		0.132	0.015
190	15.83	0.63	0.147	(0.147)		0.132	0.015
191	15.92	0.63	0.147	(0.146)		0.132	0.015
192	16.00	0.63	0.147	(0.146)		0.132	0.015
193	16.08	0.13	0.031	(0.145)		0.028	0.003
194	16.17	0.13	0.031	(0.144)		0.028	0.003
195	16.25	0.13	0.031	(0.143)		0.028	0.003
196	16.33	0.13	0.031	(0.143)		0.028	0.003
197	16.42	0.13	0.031	(0.142)		0.028	0.003
198	16.50	0.13	0.031	(0.141)		0.028	0.003
199	16.58	0.10	0.023	(0.141)		0.021	0.002
200	16.67	0.10	0.023	(0.140)		0.021	0.002
201	16.75	0.10	0.023	(0.139)		0.021	0.002
202	16.83	0.10	0.023	(0.138)		0.021	0.002
203	16.92	0.10	0.023	(0.138)		0.021	0.002
204	17.00	0.10	0.023	(0.137)		0.021	0.002
205	17.08	0.17	0.039	(0.136)		0.035	0.004
206	17.17	0.17	0.039	(0.136)		0.035	0.004
207	17.25	0.17	0.039	(0.135)		0.035	0.004
208	17.33	0.17	0.039	(0.134)		0.035	0.004
209	17.42	0.17	0.039	(0.134)		0.035	0.004
210	17.50	0.17	0.039	(0.133)		0.035	0.004
211	17.58	0.17	0.039	(0.132)		0.035	0.004
212	17.67	0.17	0.039	(0.132)		0.035	0.004
213	17.75	0.17	0.039	(0.131)		0.035	0.004
214	17.83	0.13	0.031	(0.130)		0.028	0.003
215	17.92	0.13	0.031	(0.130)		0.028	0.003
216	18.00	0.13	0.031	(0.129)		0.028	0.003
217	18.08	0.13	0.031	(0.128)		0.028	0.003
218	18.17	0.13	0.031	(0.128)		0.028	0.003
219	18.25	0.13	0.031	(0.127)		0.028	0.003
220	18.33	0.13	0.031	(0.127)		0.028	0.003
221	18.42	0.13	0.031	(0.126)		0.028	0.003
222	18.50	0.13	0.031	(0.125)		0.028	0.003
223	18.58	0.10	0.023	(0.125)		0.021	0.002
224	18.67	0.10	0.023	(0.124)		0.021	0.002
225	18.75	0.10	0.023	(0.124)		0.021	0.002
226	18.83	0.07	0.015	(0.123)		0.014	0.002
227	18.92	0.07	0.015	(0.122)		0.014	0.002
228	19.00	0.07	0.015	(0.122)		0.014	0.002
229	19.08	0.10	0.023	(0.121)		0.021	0.002
230	19.17	0.10	0.023	(0.121)		0.021	0.002
231	19.25	0.10	0.023	(0.120)		0.021	0.002
232	19.33	0.13	0.031	(0.119)		0.028	0.003
233	19.42	0.13	0.031	(0.119)		0.028	0.003
234	19.50	0.13	0.031	(0.118)		0.028	0.003
235	19.58	0.10	0.023	(0.118)		0.021	0.002
236	19.67	0.10	0.023	(0.117)		0.021	0.002

Total soil loss = 48677.0 Cubic Feet

Peak flow rate of this hydrograph = 0.743(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0000		0.00	Q			
0+10	0.0001		0.01	Q			
0+15	0.0002		0.01	Q			
0+20	0.0003		0.01	Q			
0+25	0.0004		0.02	Q			
0+30	0.0005		0.02	Q			
0+35	0.0006		0.02	Q			
0+40	0.0008		0.02	Q			
0+45	0.0009		0.02	Q			
0+50	0.0010		0.02	Q			
0+55	0.0012		0.02	Q			
1+ 0	0.0014		0.02	Q			
1+ 5	0.0015		0.02	Q			
1+10	0.0017		0.02	Q			
1+15	0.0018		0.02	Q			
1+20	0.0019		0.02	Q			
1+25	0.0021		0.02	Q			
1+30	0.0022		0.02	Q			
1+35	0.0023		0.02	Q			
1+40	0.0025		0.02	Q			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+45	0.0026	0.02	Q	|	|	|
1+50	0.0027	0.02	Q	|	|	|
1+55	0.0029	0.02	Q	|	|	|
2+ 0	0.0031	0.02	Q	|	|	|
2+ 5	0.0032	0.02	Q	|	|	|
2+10	0.0034	0.03	Q	|	|	|
2+15	0.0036	0.03	Q	|	|	|
2+20	0.0037	0.03	Q	|	|	|
2+25	0.0039	0.03	Q	|	|	|
2+30	0.0041	0.03	Q	|	|	|
2+35	0.0043	0.03	Q	|	|	|
2+40	0.0045	0.03	QV	|	|	|
2+45	0.0047	0.03	QV	|	|	|
2+50	0.0049	0.03	QV	|	|	|
2+55	0.0051	0.03	QV	|	|	|
3+ 0	0.0053	0.03	QV	|	|	|
3+ 5	0.0056	0.03	QV	|	|	|
3+10	0.0058	0.03	QV	|	|	|
3+15	0.0060	0.03	QV	|	|	|
3+20	0.0062	0.03	QV	|	|	|
3+25	0.0064	0.03	QV	|	|	|
3+30	0.0066	0.03	QV	|	|	|
3+35	0.0068	0.03	QV	|	|	|
3+40	0.0071	0.03	QV	|	|	|
3+45	0.0073	0.03	QV	|	|	|
3+50	0.0075	0.03	QV	|	|	|
3+55	0.0078	0.04	QV	|	|	|
4+ 0	0.0080	0.04	QV	|	|	|
4+ 5	0.0083	0.04	QV	|	|	|
4+10	0.0085	0.04	QV	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+15	0.0088	0.04	Q	V	|	|	|
4+20	0.0091	0.04	Q	V	|	|	|
4+25	0.0094	0.04	Q	V	|	|	|
4+30	0.0096	0.04	Q	V	|	|	|
4+35	0.0100	0.04	Q	V	|	|	|
4+40	0.0103	0.04	Q	V	|	|	|
4+45	0.0106	0.04	Q	V	|	|	|
4+50	0.0109	0.05	Q	V	|	|	|
4+55	0.0112	0.05	Q	V	|	|	|
5+ 0	0.0115	0.05	Q	V	|	|	|
5+ 5	0.0119	0.05	Q	V	|	|	|
5+10	0.0121	0.04	Q	V	|	|	|
5+15	0.0124	0.04	Q	V	|	|	|
5+20	0.0127	0.04	Q	V	|	|	|
5+25	0.0130	0.04	Q	V	|	|	|
5+30	0.0133	0.04	Q	V	|	|	|
5+35	0.0136	0.05	Q	V	|	|	|
5+40	0.0139	0.05	Q	V	|	|	|
5+45	0.0143	0.05	Q	V	|	|	|
5+50	0.0146	0.05	Q	V	|	|	|
5+55	0.0149	0.05	Q	V	|	|	|
6+ 0	0.0153	0.05	Q	V	|	|	|
6+ 5	0.0156	0.05	Q	V	|	|	|
6+10	0.0160	0.06	Q	V	|	|	|
6+15	0.0164	0.06	Q	V	|	|	|
6+20	0.0168	0.06	Q	V	|	|	|
6+25	0.0172	0.06	Q	V	|	|	|
6+30	0.0176	0.06	Q	V	|	|	|
6+35	0.0180	0.06	Q	V	|	|	|
6+40	0.0184	0.06	Q	V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+45	0.0188	0.06	Q	V	|	|	|
6+50	0.0193	0.06	Q	V	|	|	|
6+55	0.0197	0.06	Q	V	|	|	|
7+ 0	0.0201	0.06	Q	V	|	|	|
7+ 5	0.0206	0.06	Q	V	|	|	|
7+10	0.0210	0.06	Q	V	|	|	|
7+15	0.0214	0.06	Q	V	|	|	|
7+20	0.0219	0.06	Q	V	|	|	|
7+25	0.0223	0.07	Q	V	|	|	|
7+30	0.0228	0.07	Q	V	|	|	|
7+35	0.0233	0.07	Q	V	|	|	|
7+40	0.0238	0.07	Q	V	|	|	|
7+45	0.0243	0.07	Q	V	|	|	|
7+50	0.0248	0.08	Q	V	|	|	|
7+55	0.0254	0.08	Q	V	|	|	|
8+ 0	0.0259	0.08	Q	V	|	|	|
8+ 5	0.0265	0.08	Q	V	|	|	|
8+10	0.0271	0.09	Q	V	|	|	|
8+15	0.0278	0.09	Q	V	|	|	|
8+20	0.0284	0.09	Q	V	|	|	|
8+25	0.0291	0.09	Q	V	|	|	|
8+30	0.0297	0.09	Q	V	|	|	|
8+35	0.0304	0.10	Q	V	|	|	|
8+40	0.0311	0.10	Q	V	|	|	|
8+45	0.0318	0.10	Q	V	|	|	|
8+50	0.0325	0.10	Q	V	|	|	|
8+55	0.0332	0.11	Q	V	|	|	|
9+ 0	0.0339	0.11	Q	V	|	|	|
9+ 5	0.0347	0.11	Q	V	|	|	|
9+10	0.0355	0.12	Q	V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

9+15	0.0363	0.12	Q	V	|	|	|
9+20	0.0371	0.12	Q	V	|	|	|
9+25	0.0380	0.12	Q	V	|	|	|
9+30	0.0388	0.12	Q	V	|	|	|
9+35	0.0397	0.13	Q	V	|	|	|
9+40	0.0406	0.13	Q	V	|	|	|
9+45	0.0415	0.13	Q	V	|	|	|
9+50	0.0424	0.13	Q	V	|	|	|
9+55	0.0433	0.14	Q	V	|	|	|
10+ 0	0.0443	0.14	Q	V	|	|	|
10+ 5	0.0452	0.13	Q	V	|	|	|
10+10	0.0459	0.10	Q	V	|	|	|
10+15	0.0465	0.10	Q	V	|	|	|
10+20	0.0472	0.09	Q	V	|	|	|
10+25	0.0478	0.09	Q	V	|	|	|
10+30	0.0485	0.09	Q	|V	|	|	|
10+35	0.0492	0.10	Q	|V	|	|	|
10+40	0.0500	0.12	Q	|V	|	|	|
10+45	0.0508	0.12	Q	|V	|	|	|
10+50	0.0517	0.12	Q	|V	|	|	|
10+55	0.0526	0.13	Q	|V	|	|	|
11+ 0	0.0534	0.13	Q	| V	|	|	|
11+ 5	0.0543	0.12	Q	| V	|	|	|
11+10	0.0551	0.12	Q	| V	|	|	|
11+15	0.0559	0.12	Q	| V	|	|	|
11+20	0.0567	0.12	Q	| V	|	|	|
11+25	0.0576	0.12	Q	| V	|	|	|
11+30	0.0584	0.12	Q	| V	|	|	|
11+35	0.0592	0.12	Q	| V	|	|	|
11+40	0.0599	0.11	Q	| V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+45	0.0607	0.11	Q	|	V	|	|
11+50	0.0614	0.11	Q	|	V	|	|
11+55	0.0622	0.11	Q	|	V	|	|
12+ 0	0.0630	0.11	Q	|	V	|	|
12+ 5	0.0638	0.12	Q	|	V	|	|
12+10	0.0648	0.15	Q	|	V	|	|
12+15	0.0659	0.15	Q	|	V	|	|
12+20	0.0670	0.16	Q	|	V	|	|
12+25	0.0681	0.16	Q	|	V	|	|
12+30	0.0692	0.16	Q	|	V	|	|
12+35	0.0706	0.20	Q	|	V	|	|
12+40	0.0724	0.27	|Q	|	V	|	|
12+45	0.0745	0.30	|Q	|	V	|	|
12+50	0.0767	0.32	|Q	|	V	|	|
12+55	0.0792	0.37	|Q	|	V	|	|
13+ 0	0.0819	0.38	|Q	|	V	|	|
13+ 5	0.0851	0.47	|Q	|	V	|	|
13+10	0.0896	0.65	| Q	|	V	|	|
13+15	0.0945	0.70	| Q	|	|V	|	|
13+20	0.0994	0.72	| Q	|	| V	|	|
13+25	0.1045	0.73	| Q	|	| V	|	|
13+30	0.1096	0.74	| Q	|	| V	|	|
13+35	0.1137	0.60	| Q	|	| V	|	|
13+40	0.1155	0.26	|Q	|	| V	|	|
13+45	0.1168	0.18	Q	|	| V	|	|
13+50	0.1178	0.15	Q	|	| V	|	|
13+55	0.1188	0.15	Q	|	| V	|	|
14+ 0	0.1198	0.14	Q	|	| V	|	|
14+ 5	0.1212	0.20	Q	|	| V	|	|
14+10	0.1234	0.32	|Q	|	| V	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

14+15	0.1258	0.36	|Q	|	|	V	|
14+20	0.1283	0.36	|Q	|	|	V	|
14+25	0.1305	0.33	|Q	|	|	V	|
14+30	0.1328	0.33	|Q	|	|	V	|
14+35	0.1351	0.33	|Q	|	|	V	|
14+40	0.1374	0.34	|Q	|	|	|V	|
14+45	0.1398	0.34	|Q	|	|	|V	|
14+50	0.1421	0.34	|Q	|	|	|	V
14+55	0.1442	0.31	|Q	|	|	|	V
15+ 0	0.1463	0.31	|Q	|	|	|	V
15+ 5	0.1484	0.29	|Q	|	|	|	V
15+10	0.1502	0.26	|Q	|	|	|	V
15+15	0.1520	0.26	|Q	|	|	|	V
15+20	0.1537	0.25	|Q	|	|	|	V
15+25	0.1552	0.22	Q	|	|	|	V
15+30	0.1567	0.22	Q	|	|	|	V
15+35	0.1581	0.20	Q	|	|	|	V
15+40	0.1590	0.14	Q	|	|	|	V
15+45	0.1599	0.12	Q	|	|	|	V
15+50	0.1607	0.12	Q	|	|	|	V
15+55	0.1615	0.12	Q	|	|	|	V
16+ 0	0.1624	0.12	Q	|	|	|	V
16+ 5	0.1630	0.10	Q	|	|	|	V
16+10	0.1633	0.04	Q	|	|	|	V
16+15	0.1635	0.03	Q	|	|	|	V
16+20	0.1637	0.03	Q	|	|	|	V
16+25	0.1639	0.03	Q	|	|	|	V
16+30	0.1641	0.03	Q	|	|	|	V
16+35	0.1642	0.02	Q	|	|	|	V
16+40	0.1644	0.02	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

16+45	0.1645	0.02	Q	|	|	|	V
16+50	0.1646	0.02	Q	|	|	|	V
16+55	0.1647	0.02	Q	|	|	|	V
17+ 0	0.1649	0.02	Q	|	|	|	V
17+ 5	0.1650	0.02	Q	|	|	|	V
17+10	0.1652	0.03	Q	|	|	|	V
17+15	0.1654	0.03	Q	|	|	|	V
17+20	0.1656	0.03	Q	|	|	|	V
17+25	0.1659	0.03	Q	|	|	|	V
17+30	0.1661	0.03	Q	|	|	|	V
17+35	0.1663	0.03	Q	|	|	|	V
17+40	0.1665	0.03	Q	|	|	|	V
17+45	0.1667	0.03	Q	|	|	|	V
17+50	0.1669	0.03	Q	|	|	|	V
17+55	0.1671	0.03	Q	|	|	|	V
18+ 0	0.1673	0.03	Q	|	|	|	V
18+ 5	0.1675	0.03	Q	|	|	|	V
18+10	0.1676	0.03	Q	|	|	|	V
18+15	0.1678	0.03	Q	|	|	|	V
18+20	0.1680	0.03	Q	|	|	|	V
18+25	0.1681	0.03	Q	|	|	|	V
18+30	0.1683	0.03	Q	|	|	|	V
18+35	0.1685	0.02	Q	|	|	|	V
18+40	0.1686	0.02	Q	|	|	|	V
18+45	0.1688	0.02	Q	|	|	|	V
18+50	0.1689	0.02	Q	|	|	|	V
18+55	0.1690	0.01	Q	|	|	|	V
19+ 0	0.1691	0.01	Q	|	|	|	V
19+ 5	0.1692	0.01	Q	|	|	|	V
19+10	0.1693	0.02	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	19+15	0.1694	0.02	Q	|	|	|	V
|	19+20	0.1695	0.02	Q	|	|	|	V
|	19+25	0.1697	0.02	Q	|	|	|	V
|	19+30	0.1699	0.02	Q	|	|	|	V
|	19+35	0.1700	0.02	Q	|	|	|	V
|	19+40	0.1702	0.02	Q	|	|	|	V
|	19+45	0.1703	0.02	Q	|	|	|	V
|	19+50	0.1704	0.02	Q	|	|	|	V
|	19+55	0.1705	0.01	Q	|	|	|	V
|	20+ 0	0.1706	0.01	Q	|	|	|	V
|	20+ 5	0.1707	0.01	Q	|	|	|	V
|	20+10	0.1708	0.02	Q	|	|	|	V
|	20+15	0.1710	0.02	Q	|	|	|	V
|	20+20	0.1711	0.02	Q	|	|	|	V
|	20+25	0.1712	0.02	Q	|	|	|	V
|	20+30	0.1713	0.02	Q	|	|	|	
V|	20+35	0.1715	0.02	Q	|	|	|	
V|	20+40	0.1716	0.02	Q	|	|	|	
V|	20+45	0.1717	0.02	Q	|	|	|	
V|	20+50	0.1718	0.02	Q	|	|	|	
V|	20+55	0.1719	0.01	Q	|	|	|	
V|	21+ 0	0.1720	0.01	Q	|	|	|	
V|	21+ 5	0.1721	0.01	Q	|	|	|	
V|	21+10	0.1722	0.02	Q	|	|	|	
V|	21+15	0.1724	0.02	Q	|	|	|	
V|	21+20	0.1725	0.02	Q	|	|	|	
V|	21+25	0.1726	0.01	Q	|	|	|	
V|	21+30	0.1727	0.01	Q	|	|	|	
V|	21+35	0.1728	0.01	Q	|	|	|	
V|	21+40	0.1729	0.02	Q	|	|	|	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+45	0.1730	0.02	Q	|	|	|
V|	21+50	0.1731	0.02	Q	|	|	|
V|	21+55	0.1732	0.01	Q	|	|	|
V|	22+ 0	0.1733	0.01	Q	|	|	|
V|	22+ 5	0.1734	0.01	Q	|	|	|
V|	22+10	0.1735	0.02	Q	|	|	|
V|	22+15	0.1737	0.02	Q	|	|	|
V|	22+20	0.1738	0.02	Q	|	|	|
V|	22+25	0.1739	0.01	Q	|	|	|
V|	22+30	0.1740	0.01	Q	|	|	|
V|	22+35	0.1741	0.01	Q	|	|	|
V|	22+40	0.1741	0.01	Q	|	|	|
V|	22+45	0.1742	0.01	Q	|	|	|
V|	22+50	0.1743	0.01	Q	|	|	|
V|	22+55	0.1744	0.01	Q	|	|	|
V|	23+ 0	0.1745	0.01	Q	|	|	|
V|	23+ 5	0.1746	0.01	Q	|	|	|
V|	23+10	0.1747	0.01	Q	|	|	|
V|	23+15	0.1747	0.01	Q	|	|	|
V|	23+20	0.1748	0.01	Q	|	|	|
V|	23+25	0.1749	0.01	Q	|	|	|
V|	23+30	0.1750	0.01	Q	|	|	|
V|	23+35	0.1751	0.01	Q	|	|	|
V|	23+40	0.1752	0.01	Q	|	|	|
V|	23+45	0.1753	0.01	Q	|	|	|
V|	23+50	0.1753	0.01	Q	|	|	|
V|	23+55	0.1754	0.01	Q	|	|	|
V|	24+ 0	0.1755	0.01	Q	|	|	|
V|	24+ 5	0.1756	0.01	Q	|	|	|
V|	24+10	0.1756	0.00	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V	24+15	0.1756	0.00	Q			
V	24+20	0.1756	0.00	Q			
V	24+25	0.1756	0.00	Q			

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33prea242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Existing Condition
Unit Hydrograph Runoff

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Drainage Area = 5.53(Ac.) = 0.009 Sq. Mi.
0.009 Drainage Area for Depth-Area Areal Adjustment = 5.53(Ac.) =
Sq. Mi.
(Ft.) Length along longest watercourse = 852.00(Ft.)
Length along longest watercourse measured to centroid = 341.00
Length along longest watercourse = 0.161 Mi.
Mi. Length along longest watercourse measured to centroid = 0.065

Difference in elevation = 75.00(Ft.)
Slope along watercourse = 464.7887 Ft./Mi.
Average Manning's 'N' = 0.040
Lag time = 0.053 Hr.
Lag time = 3.17 Min.
25% of lag time = 0.79 Min.
40% of lag time = 1.27 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.015	(0.352)	0.014	0.002
2	0.17	0.07	0.015	(0.350)	0.014	0.002
3	0.25	0.07	0.015	(0.349)	0.014	0.002
4	0.33	0.10	0.023	(0.348)	0.021	0.002
5	0.42	0.10	0.023	(0.346)	0.021	0.002
6	0.50	0.10	0.023	(0.345)	0.021	0.002
7	0.58	0.10	0.023	(0.344)	0.021	0.002
8	0.67	0.10	0.023	(0.342)	0.021	0.002
9	0.75	0.10	0.023	(0.341)	0.021	0.002
10	0.83	0.13	0.031	(0.340)	0.028	0.003
11	0.92	0.13	0.031	(0.338)	0.028	0.003
12	1.00	0.13	0.031	(0.337)	0.028	0.003
13	1.08	0.10	0.023	(0.336)	0.021	0.002
14	1.17	0.10	0.023	(0.334)	0.021	0.002
15	1.25	0.10	0.023	(0.333)	0.021	0.002
16	1.33	0.10	0.023	(0.332)	0.021	0.002
17	1.42	0.10	0.023	(0.330)	0.021	0.002
18	1.50	0.10	0.023	(0.329)	0.021	0.002
19	1.58	0.10	0.023	(0.328)	0.021	0.002
20	1.67	0.10	0.023	(0.326)	0.021	0.002
21	1.75	0.10	0.023	(0.325)	0.021	0.002
22	1.83	0.13	0.031	(0.324)	0.028	0.003
23	1.92	0.13	0.031	(0.322)	0.028	0.003
24	2.00	0.13	0.031	(0.321)	0.028	0.003
25	2.08	0.13	0.031	(0.320)	0.028	0.003
26	2.17	0.13	0.031	(0.318)	0.028	0.003
27	2.25	0.13	0.031	(0.317)	0.028	0.003
28	2.33	0.13	0.031	(0.316)	0.028	0.003
29	2.42	0.13	0.031	(0.315)	0.028	0.003
30	2.50	0.13	0.031	(0.313)	0.028	0.003
31	2.58	0.17	0.039	(0.312)	0.035	0.004
32	2.67	0.17	0.039	(0.311)	0.035	0.004
33	2.75	0.17	0.039	(0.310)	0.035	0.004
34	2.83	0.17	0.039	(0.308)	0.035	0.004
35	2.92	0.17	0.039	(0.307)	0.035	0.004
36	3.00	0.17	0.039	(0.306)	0.035	0.004
37	3.08	0.17	0.039	(0.304)	0.035	0.004
38	3.17	0.17	0.039	(0.303)	0.035	0.004
39	3.25	0.17	0.039	(0.302)	0.035	0.004
40	3.33	0.17	0.039	(0.301)	0.035	0.004
41	3.42	0.17	0.039	(0.299)	0.035	0.004
42	3.50	0.17	0.039	(0.298)	0.035	0.004
43	3.58	0.17	0.039	(0.297)	0.035	0.004
44	3.67	0.17	0.039	(0.296)	0.035	0.004
45	3.75	0.17	0.039	(0.294)	0.035	0.004
46	3.83	0.20	0.046	(0.293)	0.042	0.005
47	3.92	0.20	0.046	(0.292)	0.042	0.005
48	4.00	0.20	0.046	(0.291)	0.042	0.005
49	4.08	0.20	0.046	(0.289)	0.042	0.005
50	4.17	0.20	0.046	(0.288)	0.042	0.005
51	4.25	0.20	0.046	(0.287)	0.042	0.005
52	4.33	0.23	0.054	(0.286)	0.049	0.005
53	4.42	0.23	0.054	(0.285)	0.049	0.005
54	4.50	0.23	0.054	(0.283)	0.049	0.005
55	4.58	0.23	0.054	(0.282)	0.049	0.005
56	4.67	0.23	0.054	(0.281)	0.049	0.005
57	4.75	0.23	0.054	(0.280)	0.049	0.005

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

58	4.83	0.27	0.062	(0.278)	0.056	0.006
59	4.92	0.27	0.062	(0.277)	0.056	0.006
60	5.00	0.27	0.062	(0.276)	0.056	0.006
61	5.08	0.20	0.046	(0.275)	0.042	0.005
62	5.17	0.20	0.046	(0.274)	0.042	0.005
63	5.25	0.20	0.046	(0.272)	0.042	0.005
64	5.33	0.23	0.054	(0.271)	0.049	0.005
65	5.42	0.23	0.054	(0.270)	0.049	0.005
66	5.50	0.23	0.054	(0.269)	0.049	0.005
67	5.58	0.27	0.062	(0.268)	0.056	0.006
68	5.67	0.27	0.062	(0.267)	0.056	0.006
69	5.75	0.27	0.062	(0.265)	0.056	0.006
70	5.83	0.27	0.062	(0.264)	0.056	0.006
71	5.92	0.27	0.062	(0.263)	0.056	0.006
72	6.00	0.27	0.062	(0.262)	0.056	0.006
73	6.08	0.30	0.069	(0.261)	0.063	0.007
74	6.17	0.30	0.069	(0.260)	0.063	0.007
75	6.25	0.30	0.069	(0.258)	0.063	0.007
76	6.33	0.30	0.069	(0.257)	0.063	0.007
77	6.42	0.30	0.069	(0.256)	0.063	0.007
78	6.50	0.30	0.069	(0.255)	0.063	0.007
79	6.58	0.33	0.077	(0.254)	0.069	0.008
80	6.67	0.33	0.077	(0.253)	0.069	0.008
81	6.75	0.33	0.077	(0.252)	0.069	0.008
82	6.83	0.33	0.077	(0.250)	0.069	0.008
83	6.92	0.33	0.077	(0.249)	0.069	0.008
84	7.00	0.33	0.077	(0.248)	0.069	0.008
85	7.08	0.33	0.077	(0.247)	0.069	0.008
86	7.17	0.33	0.077	(0.246)	0.069	0.008
87	7.25	0.33	0.077	(0.245)	0.069	0.008
88	7.33	0.37	0.085	(0.244)	0.076	0.008
89	7.42	0.37	0.085	(0.243)	0.076	0.008
90	7.50	0.37	0.085	(0.241)	0.076	0.008
91	7.58	0.40	0.093	(0.240)	0.083	0.009
92	7.67	0.40	0.093	(0.239)	0.083	0.009
93	7.75	0.40	0.093	(0.238)	0.083	0.009
94	7.83	0.43	0.100	(0.237)	0.090	0.010
95	7.92	0.43	0.100	(0.236)	0.090	0.010
96	8.00	0.43	0.100	(0.235)	0.090	0.010
97	8.08	0.50	0.116	(0.234)	0.104	0.012
98	8.17	0.50	0.116	(0.233)	0.104	0.012
99	8.25	0.50	0.116	(0.232)	0.104	0.012
100	8.33	0.50	0.116	(0.230)	0.104	0.012
101	8.42	0.50	0.116	(0.229)	0.104	0.012
102	8.50	0.50	0.116	(0.228)	0.104	0.012
103	8.58	0.53	0.124	(0.227)	0.111	0.012
104	8.67	0.53	0.124	(0.226)	0.111	0.012
105	8.75	0.53	0.124	(0.225)	0.111	0.012
106	8.83	0.57	0.131	(0.224)	0.118	0.013
107	8.92	0.57	0.131	(0.223)	0.118	0.013
108	9.00	0.57	0.131	(0.222)	0.118	0.013
109	9.08	0.63	0.147	(0.221)	0.132	0.015
110	9.17	0.63	0.147	(0.220)	0.132	0.015
111	9.25	0.63	0.147	(0.219)	0.132	0.015
112	9.33	0.67	0.154	(0.218)	0.139	0.015
113	9.42	0.67	0.154	(0.217)	0.139	0.015
114	9.50	0.67	0.154	(0.216)	0.139	0.015
115	9.58	0.70	0.162	(0.215)	0.146	0.016
116	9.67	0.70	0.162	(0.214)	0.146	0.016
117	9.75	0.70	0.162	(0.213)	0.146	0.016

118	9.83	0.73	0.170	(0.212)	0.153	0.017
119	9.92	0.73	0.170	(0.211)	0.153	0.017
120	10.00	0.73	0.170	(0.210)	0.153	0.017
121	10.08	0.50	0.116	(0.208)	0.104	0.012
122	10.17	0.50	0.116	(0.207)	0.104	0.012
123	10.25	0.50	0.116	(0.206)	0.104	0.012
124	10.33	0.50	0.116	(0.205)	0.104	0.012
125	10.42	0.50	0.116	(0.204)	0.104	0.012
126	10.50	0.50	0.116	(0.203)	0.104	0.012
127	10.58	0.67	0.154	(0.202)	0.139	0.015
128	10.67	0.67	0.154	(0.201)	0.139	0.015
129	10.75	0.67	0.154	(0.201)	0.139	0.015
130	10.83	0.67	0.154	(0.200)	0.139	0.015
131	10.92	0.67	0.154	(0.199)	0.139	0.015
132	11.00	0.67	0.154	(0.198)	0.139	0.015
133	11.08	0.63	0.147	(0.197)	0.132	0.015
134	11.17	0.63	0.147	(0.196)	0.132	0.015
135	11.25	0.63	0.147	(0.195)	0.132	0.015
136	11.33	0.63	0.147	(0.194)	0.132	0.015
137	11.42	0.63	0.147	(0.193)	0.132	0.015
138	11.50	0.63	0.147	(0.192)	0.132	0.015
139	11.58	0.57	0.131	(0.191)	0.118	0.013
140	11.67	0.57	0.131	(0.190)	0.118	0.013
141	11.75	0.57	0.131	(0.189)	0.118	0.013
142	11.83	0.60	0.139	(0.188)	0.125	0.014
143	11.92	0.60	0.139	(0.187)	0.125	0.014
144	12.00	0.60	0.139	(0.186)	0.125	0.014
145	12.08	0.83	0.193	(0.185)	0.174	0.019
146	12.17	0.83	0.193	(0.184)	0.174	0.019
147	12.25	0.83	0.193	(0.183)	0.174	0.019
148	12.33	0.87	0.201	(0.182)	0.181	0.020
149	12.42	0.87	0.201	(0.182)	0.181	0.020
150	12.50	0.87	0.201	0.181	(0.181)	0.020
151	12.58	0.93	0.216	0.180	(0.195)	0.036
152	12.67	0.93	0.216	0.179	(0.195)	0.037
153	12.75	0.93	0.216	0.178	(0.195)	0.038
154	12.83	0.97	0.224	0.177	(0.201)	0.047
155	12.92	0.97	0.224	0.176	(0.201)	0.048
156	13.00	0.97	0.224	0.175	(0.201)	0.049
157	13.08	1.13	0.262	0.174	(0.236)	0.088
158	13.17	1.13	0.262	0.173	(0.236)	0.089
159	13.25	1.13	0.262	0.173	(0.236)	0.090
160	13.33	1.13	0.262	0.172	(0.236)	0.091
161	13.42	1.13	0.262	0.171	(0.236)	0.092
162	13.50	1.13	0.262	0.170	(0.236)	0.093
163	13.58	0.77	0.178	(0.169)	0.160	0.018
164	13.67	0.77	0.178	(0.168)	0.160	0.018
165	13.75	0.77	0.178	(0.167)	0.160	0.018
166	13.83	0.77	0.178	(0.166)	0.160	0.018
167	13.92	0.77	0.178	(0.166)	0.160	0.018
168	14.00	0.77	0.178	(0.165)	0.160	0.018
169	14.08	0.90	0.208	0.164	(0.188)	0.044
170	14.17	0.90	0.208	0.163	(0.188)	0.045
171	14.25	0.90	0.208	0.162	(0.188)	0.046
172	14.33	0.87	0.201	0.161	(0.181)	0.039
173	14.42	0.87	0.201	0.161	(0.181)	0.040
174	14.50	0.87	0.201	0.160	(0.181)	0.041
175	14.58	0.87	0.201	0.159	(0.181)	0.042
176	14.67	0.87	0.201	0.158	(0.181)	0.043
177	14.75	0.87	0.201	0.157	(0.181)	0.043

178	14.83	0.83	0.193	0.157	(0.174)	0.036
179	14.92	0.83	0.193	0.156	(0.174)	0.037
180	15.00	0.83	0.193	0.155	(0.174)	0.038
181	15.08	0.80	0.185	0.154	(0.167)	0.031
182	15.17	0.80	0.185	0.153	(0.167)	0.032
183	15.25	0.80	0.185	0.153	(0.167)	0.033
184	15.33	0.77	0.178	0.152	(0.160)	0.026
185	15.42	0.77	0.178	0.151	(0.160)	0.027
186	15.50	0.77	0.178	0.150	(0.160)	0.027
187	15.58	0.63	0.147	(0.149)	0.132	0.015
188	15.67	0.63	0.147	(0.149)	0.132	0.015
189	15.75	0.63	0.147	(0.148)	0.132	0.015
190	15.83	0.63	0.147	(0.147)	0.132	0.015
191	15.92	0.63	0.147	(0.146)	0.132	0.015
192	16.00	0.63	0.147	(0.146)	0.132	0.015
193	16.08	0.13	0.031	(0.145)	0.028	0.003
194	16.17	0.13	0.031	(0.144)	0.028	0.003
195	16.25	0.13	0.031	(0.143)	0.028	0.003
196	16.33	0.13	0.031	(0.143)	0.028	0.003
197	16.42	0.13	0.031	(0.142)	0.028	0.003
198	16.50	0.13	0.031	(0.141)	0.028	0.003
199	16.58	0.10	0.023	(0.141)	0.021	0.002
200	16.67	0.10	0.023	(0.140)	0.021	0.002
201	16.75	0.10	0.023	(0.139)	0.021	0.002
202	16.83	0.10	0.023	(0.138)	0.021	0.002
203	16.92	0.10	0.023	(0.138)	0.021	0.002
204	17.00	0.10	0.023	(0.137)	0.021	0.002
205	17.08	0.17	0.039	(0.136)	0.035	0.004
206	17.17	0.17	0.039	(0.136)	0.035	0.004
207	17.25	0.17	0.039	(0.135)	0.035	0.004
208	17.33	0.17	0.039	(0.134)	0.035	0.004
209	17.42	0.17	0.039	(0.134)	0.035	0.004
210	17.50	0.17	0.039	(0.133)	0.035	0.004
211	17.58	0.17	0.039	(0.132)	0.035	0.004
212	17.67	0.17	0.039	(0.132)	0.035	0.004
213	17.75	0.17	0.039	(0.131)	0.035	0.004
214	17.83	0.13	0.031	(0.130)	0.028	0.003
215	17.92	0.13	0.031	(0.130)	0.028	0.003
216	18.00	0.13	0.031	(0.129)	0.028	0.003
217	18.08	0.13	0.031	(0.128)	0.028	0.003
218	18.17	0.13	0.031	(0.128)	0.028	0.003
219	18.25	0.13	0.031	(0.127)	0.028	0.003
220	18.33	0.13	0.031	(0.127)	0.028	0.003
221	18.42	0.13	0.031	(0.126)	0.028	0.003
222	18.50	0.13	0.031	(0.125)	0.028	0.003
223	18.58	0.10	0.023	(0.125)	0.021	0.002
224	18.67	0.10	0.023	(0.124)	0.021	0.002
225	18.75	0.10	0.023	(0.124)	0.021	0.002
226	18.83	0.07	0.015	(0.123)	0.014	0.002
227	18.92	0.07	0.015	(0.122)	0.014	0.002
228	19.00	0.07	0.015	(0.122)	0.014	0.002
229	19.08	0.10	0.023	(0.121)	0.021	0.002
230	19.17	0.10	0.023	(0.121)	0.021	0.002
231	19.25	0.10	0.023	(0.120)	0.021	0.002
232	19.33	0.13	0.031	(0.119)	0.028	0.003
233	19.42	0.13	0.031	(0.119)	0.028	0.003
234	19.50	0.13	0.031	(0.118)	0.028	0.003
235	19.58	0.10	0.023	(0.118)	0.021	0.002
236	19.67	0.10	0.023	(0.117)	0.021	0.002
237	19.75	0.10	0.023	(0.117)	0.021	0.002

238	19.83	0.07	0.015	(0.116)	0.014	0.002
239	19.92	0.07	0.015	(0.116)	0.014	0.002
240	20.00	0.07	0.015	(0.115)	0.014	0.002
241	20.08	0.10	0.023	(0.115)	0.021	0.002
242	20.17	0.10	0.023	(0.114)	0.021	0.002
243	20.25	0.10	0.023	(0.114)	0.021	0.002
244	20.33	0.10	0.023	(0.113)	0.021	0.002
245	20.42	0.10	0.023	(0.113)	0.021	0.002
246	20.50	0.10	0.023	(0.112)	0.021	0.002
247	20.58	0.10	0.023	(0.112)	0.021	0.002
248	20.67	0.10	0.023	(0.111)	0.021	0.002
249	20.75	0.10	0.023	(0.111)	0.021	0.002
250	20.83	0.07	0.015	(0.110)	0.014	0.002
251	20.92	0.07	0.015	(0.110)	0.014	0.002
252	21.00	0.07	0.015	(0.110)	0.014	0.002
253	21.08	0.10	0.023	(0.109)	0.021	0.002
254	21.17	0.10	0.023	(0.109)	0.021	0.002
255	21.25	0.10	0.023	(0.108)	0.021	0.002
256	21.33	0.07	0.015	(0.108)	0.014	0.002
257	21.42	0.07	0.015	(0.107)	0.014	0.002
258	21.50	0.07	0.015	(0.107)	0.014	0.002
259	21.58	0.10	0.023	(0.107)	0.021	0.002
260	21.67	0.10	0.023	(0.106)	0.021	0.002
261	21.75	0.10	0.023	(0.106)	0.021	0.002
262	21.83	0.07	0.015	(0.105)	0.014	0.002
263	21.92	0.07	0.015	(0.105)	0.014	0.002
264	22.00	0.07	0.015	(0.105)	0.014	0.002
265	22.08	0.10	0.023	(0.104)	0.021	0.002
266	22.17	0.10	0.023	(0.104)	0.021	0.002
267	22.25	0.10	0.023	(0.104)	0.021	0.002
268	22.33	0.07	0.015	(0.103)	0.014	0.002
269	22.42	0.07	0.015	(0.103)	0.014	0.002
270	22.50	0.07	0.015	(0.103)	0.014	0.002
271	22.58	0.07	0.015	(0.102)	0.014	0.002
272	22.67	0.07	0.015	(0.102)	0.014	0.002
273	22.75	0.07	0.015	(0.102)	0.014	0.002
274	22.83	0.07	0.015	(0.102)	0.014	0.002
275	22.92	0.07	0.015	(0.101)	0.014	0.002
276	23.00	0.07	0.015	(0.101)	0.014	0.002
277	23.08	0.07	0.015	(0.101)	0.014	0.002
278	23.17	0.07	0.015	(0.101)	0.014	0.002
279	23.25	0.07	0.015	(0.100)	0.014	0.002
280	23.33	0.07	0.015	(0.100)	0.014	0.002
281	23.42	0.07	0.015	(0.100)	0.014	0.002
282	23.50	0.07	0.015	(0.100)	0.014	0.002
283	23.58	0.07	0.015	(0.100)	0.014	0.002
284	23.67	0.07	0.015	(0.100)	0.014	0.002
285	23.75	0.07	0.015	(0.099)	0.014	0.002
286	23.83	0.07	0.015	(0.099)	0.014	0.002
287	23.92	0.07	0.015	(0.099)	0.014	0.002
288	24.00	0.07	0.015	(0.099)	0.014	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.1

Flood volume = Effective rainfall 0.26(In)
times area 5.5(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 1.67(In)
Total soil loss = 0.769(Ac.Ft)
Total rainfall = 1.93(In)
Flood volume = 5261.5 Cubic Feet
Total soil loss = 33480.7 Cubic Feet

 -- Peak flow rate of this hydrograph = 0.512(CFS)

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 24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

-- Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0000	0.00	Q	|	|	|
0+10	0.0001	0.01	Q	|	|	|
0+15	0.0001	0.01	Q	|	|	|
0+20	0.0002	0.01	Q	|	|	|
0+25	0.0003	0.01	Q	|	|	|
0+30	0.0004	0.01	Q	|	|	|
0+35	0.0005	0.01	Q	|	|	|
0+40	0.0005	0.01	Q	|	|	|
0+45	0.0006	0.01	Q	|	|	|
0+50	0.0007	0.01	Q	|	|	|
0+55	0.0008	0.02	Q	|	|	|
1+ 0	0.0010	0.02	Q	|	|	|
1+ 5	0.0011	0.02	Q	|	|	|
1+10	0.0012	0.01	Q	|	|	|
1+15	0.0013	0.01	Q	|	|	|
1+20	0.0013	0.01	Q	|	|	|
1+25	0.0014	0.01	Q			
1+30	0.0015	0.01	Q			
1+35	0.0016	0.01	Q			
1+40	0.0017	0.01	Q			
1+45	0.0018	0.01	Q			

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1+50	0.0019	0.01	Q			
1+55	0.0020	0.02	Q			
2+ 0	0.0021	0.02	Q			
2+ 5	0.0022	0.02	Q			
2+10	0.0024	0.02	Q			
2+15	0.0025	0.02	Q			
2+20	0.0026	0.02	Q	|	|	|
2+25	0.0027	0.02	Q	|	|	|
2+30	0.0028	0.02	Q	|	|	|
2+35	0.0030	0.02	Q	|	|	|
2+40	0.0031	0.02	QV	|	|	|
2+45	0.0033	0.02	QV	|	|	|
2+50	0.0034	0.02	QV	|	|	|
2+55	0.0036	0.02	QV	|	|	|
3+ 0	0.0037	0.02	QV	|	|	|
3+ 5	0.0038	0.02	QV	|	|	|
3+10	0.0040	0.02	QV	|	|	|
3+15	0.0041	0.02	QV	|	|	|
3+20	0.0043	0.02	QV	|	|	|
3+25	0.0044	0.02	QV	|	|	|
3+30	0.0046	0.02	QV	|	|	|
3+35	0.0047	0.02	QV	|	|	|
3+40	0.0049	0.02	QV	|	|	|
3+45	0.0050	0.02	QV	|	|	|
3+50	0.0052	0.02	QV	|	|	|
3+55	0.0054	0.03	QV			
4+ 0	0.0055	0.03	QV			
4+ 5	0.0057	0.03	QV			
4+10	0.0059	0.03	QV			
4+15	0.0061	0.03	Q V			

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4+20	0.0063	0.03	Q	V			
4+25	0.0065	0.03	Q	V			
4+30	0.0067	0.03	Q	V			
4+35	0.0069	0.03	Q	V			
4+40	0.0071	0.03	Q	V			
4+45	0.0073	0.03	Q	V	|	|	|
4+50	0.0075	0.03	Q	V	|	|	|
4+55	0.0077	0.03	Q	V	|	|	|
5+ 0	0.0080	0.03	Q	V	|	|	|
5+ 5	0.0082	0.03	Q	V	|	|	|
5+10	0.0084	0.03	Q	V	|	|	|
5+15	0.0086	0.03	Q	V	|	|	|
5+20	0.0088	0.03	Q	V	|	|	|
5+25	0.0090	0.03	Q	V	|	|	|
5+30	0.0092	0.03	Q	V	|	|	|
5+35	0.0094	0.03	Q	V	|	|	|
5+40	0.0096	0.03	Q	V	|	|	|
5+45	0.0099	0.03	Q	V	|	|	|
5+50	0.0101	0.03	Q	V	|	|	|
5+55	0.0103	0.03	Q	V	|	|	|
6+ 0	0.0106	0.03	Q	V	|	|	|
6+ 5	0.0108	0.04	Q	V	|	|	|
6+10	0.0111	0.04	Q	V	|	|	|
6+15	0.0113	0.04	Q	V	|	|	|
6+20	0.0116	0.04	Q	V	|	|	|
6+25	0.0119	0.04	Q	V	|	|	|
6+30	0.0121	0.04	Q	V	|	|	|
6+35	0.0124	0.04	Q	V	|	|	|
6+40	0.0127	0.04	Q	V	|	|	|
6+45	0.0130	0.04	Q	V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

6+50	0.0133	0.04	Q	V	|	|	|
6+55	0.0136	0.04	Q	V	|	|	|
7+ 0	0.0139	0.04	Q	V	|	|	|
7+ 5	0.0142	0.04	Q	V	|	|	|
7+10	0.0145	0.04	Q	V	|	|	|
7+15	0.0148	0.04	Q	V	|	|	|
7+20	0.0151	0.04	Q	V	|	|	|
7+25	0.0154	0.05	Q	V	|	|	|
7+30	0.0157	0.05	Q	V	|	|	|
7+35	0.0161	0.05	Q	V	|	|	|
7+40	0.0164	0.05	Q	V	|	|	|
7+45	0.0168	0.05	Q	V	|	|	|
7+50	0.0171	0.05	Q	V	|	|	|
7+55	0.0175	0.06	Q	V	|	|	|
8+ 0	0.0179	0.06	Q	V	|	|	|
8+ 5	0.0183	0.06	Q	V	|	|	|
8+10	0.0187	0.06	Q	V	|	|	|
8+15	0.0192	0.06	Q	V	|	|	|
8+20	0.0196	0.06	Q	V	|	|	|
8+25	0.0201	0.06	Q	V	|	|	|
8+30	0.0205	0.06	Q	V	|	|	|
8+35	0.0210	0.07	Q	V	|	|	|
8+40	0.0215	0.07	Q	V	|	|	|
8+45	0.0219	0.07	Q	V	|	|	|
8+50	0.0224	0.07	Q	V	|	|	|
8+55	0.0229	0.07	Q	V	|	|	|
9+ 0	0.0234	0.07	Q	V	|	|	|
9+ 5	0.0239	0.08	Q	V	|	|	|
9+10	0.0245	0.08	Q	V	|	|	|
9+15	0.0251	0.08	Q	V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+20	0.0256	0.08	Q	V	|	|	|
9+25	0.0262	0.09	Q	V	|	|	|
9+30	0.0268	0.09	Q	V	|	|	|
9+35	0.0274	0.09	Q	V	|	|	|
9+40	0.0280	0.09	Q	V	|	|	|
9+45	0.0286	0.09	Q	V	|	|	|
9+50	0.0293	0.09	Q	V	|	|	|
9+55	0.0299	0.09	Q	V	|	|	|
10+ 0	0.0306	0.09	Q	V	|	|	|
10+ 5	0.0312	0.08	Q	V	|	|	|
10+10	0.0316	0.07	Q	V	|	|	|
10+15	0.0321	0.07	Q	V	|	|	|
10+20	0.0325	0.06	Q	V	|	|	|
10+25	0.0330	0.06	Q	V	|	|	|
10+30	0.0334	0.06	Q	|V	|	|	|
10+35	0.0339	0.07	Q	|V	|	|	|
10+40	0.0345	0.08	Q	|V	|	|	|
10+45	0.0351	0.09	Q	|V	|	|	|
10+50	0.0357	0.09	Q	|V	|	|	|
10+55	0.0363	0.09	Q	| V	|	|	|
11+ 0	0.0369	0.09	Q	| V	|	|	|
11+ 5	0.0374	0.08	Q	| V	|	|	|
11+10	0.0380	0.08	Q	| V	|	|	|
11+15	0.0386	0.08	Q	| V	|	|	|
11+20	0.0391	0.08	Q	| V	|	|	|
11+25	0.0397	0.08	Q	| V	|	|	|
11+30	0.0403	0.08	Q	| V	|	|	|
11+35	0.0408	0.08	Q	| V	|	|	|
11+40	0.0413	0.07	Q	| V	|	|	|
11+45	0.0418	0.07	Q	| V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+50	0.0423	0.07	Q	|	V	|	|
11+55	0.0429	0.08	Q	|	V	|	|
12+ 0	0.0434	0.08	Q	|	V	|	|
12+ 5	0.0440	0.09	Q	|	V	|	|
12+10	0.0447	0.10	Q	|	V	|	|
12+15	0.0454	0.11	Q	|	V	|	|
12+20	0.0462	0.11	Q	|	V	|	|
12+25	0.0470	0.11	Q	|	V	|	|
12+30	0.0477	0.11	Q	|	V	|	|
12+35	0.0487	0.14	Q	|	V	|	|
12+40	0.0500	0.19	Q	|	V	|	|
12+45	0.0515	0.21	Q	|	V	|	|
12+50	0.0530	0.23	Q	|	V	|	|
12+55	0.0548	0.26	|Q	|	V	|	|
13+ 0	0.0566	0.27	|Q	|	V	|	|
13+ 5	0.0590	0.34	|Q	|	V|	|	|
13+10	0.0622	0.46	|Q	|	V	|	|
13+15	0.0656	0.49	|Q	|	|V	|	|
13+20	0.0690	0.50	| Q	|	| V	|	|
13+25	0.0725	0.51	| Q	|	|	V	|
13+30	0.0760	0.51	| Q	|	|	V	|
13+35	0.0786	0.38	|Q	|	|	V	|
13+40	0.0797	0.16	Q	|	|	V	|
13+45	0.0805	0.11	Q	|	|	V	|
13+50	0.0812	0.10	Q	|	|	V	|
13+55	0.0819	0.10	Q	|	|	V	|
14+ 0	0.0825	0.10	Q	|	|	V	|
14+ 5	0.0835	0.15	Q	|	|	V	|
14+10	0.0851	0.23	Q	|	|	V	|
14+15	0.0868	0.25	Q	|	|	V	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+20	0.0885	0.24	Q	|	|	v|
14+25	0.0901	0.23	Q	|	|	v|
14+30	0.0916	0.23	Q	|	|	v
14+35	0.0932	0.23	Q	|	|	v
14+40	0.0948	0.23	Q	|	|	|v
14+45	0.0964	0.24	Q	|	|	|v
14+50	0.0980	0.23	Q	|	|	| v
14+55	0.0995	0.21	Q	|	|	| v
15+ 0	0.1009	0.21	Q	|	|	| v
15+ 5	0.1023	0.20	Q	|	|	| v
15+10	0.1035	0.18	Q	|	|	| v
15+15	0.1048	0.18	Q	|	|	| v
15+20	0.1059	0.17	Q	|	|	| v
15+25	0.1070	0.15	Q	|	|	| v
15+30	0.1080	0.15	Q	|	|	| v
15+35	0.1089	0.13	Q	|	|	| v
15+40	0.1095	0.09	Q	|	|	| v
15+45	0.1101	0.08	Q	|	|	| v
15+50	0.1106	0.08	Q	|	|	| v
15+55	0.1112	0.08	Q	|	|	| v
16+ 0	0.1118	0.08	Q	|	|	| v
16+ 5	0.1122	0.06	Q	|	|	| v
16+10	0.1124	0.03	Q	|	|	| v
16+15	0.1125	0.02	Q	|	|	| v
16+20	0.1126	0.02	Q	|	|	| v
16+25	0.1127	0.02	Q	|	|	| v
16+30	0.1129	0.02	Q	|	|	| v
16+35	0.1130	0.02	Q	|	|	| v
16+40	0.1131	0.01	Q	|	|	| v
16+45	0.1132	0.01	Q	|	|	| v

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

16+50	0.1132	0.01	Q	|	|	|	V
16+55	0.1133	0.01	Q	|	|	|	V
17+ 0	0.1134	0.01	Q	|	|	|	V
17+ 5	0.1135	0.02	Q	|	|	|	V
17+10	0.1137	0.02	Q	|	|	|	V
17+15	0.1138	0.02	Q	|	|	|	V
17+20	0.1140	0.02	Q	|	|	|	V
17+25	0.1141	0.02	Q	|	|	|	V
17+30	0.1143	0.02	Q	|	|	|	V
17+35	0.1144	0.02	Q	|	|	|	V
17+40	0.1146	0.02	Q	|	|	|	V
17+45	0.1147	0.02	Q	|	|	|	V
17+50	0.1148	0.02	Q	|	|	|	V
17+55	0.1150	0.02	Q	|	|	|	V
18+ 0	0.1151	0.02	Q	|	|	|	V
18+ 5	0.1152	0.02	Q	|	|	|	V
18+10	0.1153	0.02	Q	|	|	|	V
18+15	0.1154	0.02	Q	|	|	|	V
18+20	0.1156	0.02	Q	|	|	|	V
18+25	0.1157	0.02	Q	|	|	|	V
18+30	0.1158	0.02	Q	|	|	|	V
18+35	0.1159	0.02	Q	|	|	|	V
18+40	0.1160	0.01	Q	|	|	|	V
18+45	0.1161	0.01	Q	|	|	|	V
18+50	0.1162	0.01	Q	|	|	|	V
18+55	0.1162	0.01	Q	|	|	|	V
19+ 0	0.1163	0.01	Q	|	|	|	V
19+ 5	0.1164	0.01	Q	|	|	|	V
19+10	0.1164	0.01	Q	|	|	|	V
19+15	0.1165	0.01	Q	|	|	|	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	19+20	0.1166	0.01	Q				V
	19+25	0.1167	0.02	Q				V
	19+30	0.1169	0.02	Q				V
	19+35	0.1170	0.02	Q				V
	19+40	0.1171	0.01	Q				V
	19+45	0.1172	0.01	Q				V
	19+50	0.1172	0.01	Q				V
	19+55	0.1173	0.01	Q				V
	20+ 0	0.1174	0.01	Q				V
	20+ 5	0.1174	0.01	Q				V
	20+10	0.1175	0.01	Q				V
	20+15	0.1176	0.01	Q				V
	20+20	0.1177	0.01	Q				V
	20+25	0.1178	0.01	Q				
V|	20+30	0.1179	0.01	Q				
V|	20+35	0.1180	0.01	Q				
V|	20+40	0.1180	0.01	Q				
V|	20+45	0.1181	0.01	Q				
V|	20+50	0.1182	0.01	Q				
V|	20+55	0.1183	0.01	Q				
V|	21+ 0	0.1183	0.01	Q				
V|	21+ 5	0.1184	0.01	Q				
V|	21+10	0.1185	0.01	Q				
V|	21+15	0.1186	0.01	Q				
V|	21+20	0.1187	0.01	Q				
V|	21+25	0.1187	0.01	Q				
V|	21+30	0.1188	0.01	Q				
V|	21+35	0.1188	0.01	Q				
V|	21+40	0.1189	0.01	Q				
V|	21+45	0.1190	0.01	Q				

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	0.1191	0.01	Q	|	|	|
V|	21+55	0.1192	0.01	Q	|	|	|
V|	22+ 0	0.1192	0.01	Q	|	|	|
V|	22+ 5	0.1193	0.01	Q	|	|	|
V|	22+10	0.1194	0.01	Q	|	|	|
V|	22+15	0.1195	0.01	Q	|	|	|
V|	22+20	0.1195	0.01	Q	|	|	|
V|	22+25	0.1196	0.01	Q	|	|	|
V|	22+30	0.1197	0.01	Q	|	|	|
V|	22+35	0.1197	0.01	Q	|	|	|
V|	22+40	0.1198	0.01	Q	|	|	|
V|	22+45	0.1198	0.01	Q	|	|	|
V|	22+50	0.1199	0.01	Q	|	|	|
V|	22+55	0.1200	0.01	Q	|	|	|
V|	23+ 0	0.1200	0.01	Q	|	|	|
V|	23+ 5	0.1201	0.01	Q	|	|	|
V|	23+10	0.1201	0.01	Q	|	|	|
V|	23+15	0.1202	0.01	Q	|	|	|
V|	23+20	0.1203	0.01	Q	|	|	|
V|	23+25	0.1203	0.01	Q	|	|	|
V|	23+30	0.1204	0.01	Q	|	|	|
V|	23+35	0.1204	0.01	Q	|	|	|
V|	23+40	0.1205	0.01	Q	|	|	|
V|	23+45	0.1206	0.01	Q	|	|	|
V|	23+50	0.1206	0.01	Q	|	|	|
V|	23+55	0.1207	0.01	Q	|	|	|
V|	24+ 0	0.1207	0.01	Q	|	|	|
V|	24+ 5	0.1208	0.01	Q	|	|	|
V|	24+10	0.1208	0.00	Q	|	|	|
V|	24+15	0.1208	0.00	Q	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V	24+20	0.1208	0.00	Q			
v							

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area B

--

Drainage Area = 10.90(Ac.) = 0.017 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 10.90(Ac.) =
0.017 Sq. Mi.
Length along longest watercourse = 1380.00(Ft.)
Length along longest watercourse measured to centroid = 828.00
(Ft.)
Length along longest watercourse = 0.261 Mi.
Length along longest watercourse measured to centroid = 0.157
Mi.
Difference in elevation = 52.00(Ft.)
Slope along watercourse = 198.9565 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.039 Hr.
Lag time = 2.35 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.94 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.015	(0.274)	0.006	0.010
2	0.17	0.07	0.015	(0.273)	0.006	0.010
3	0.25	0.07	0.015	(0.272)	0.006	0.010
4	0.33	0.10	0.023	(0.271)	0.009	0.014
5	0.42	0.10	0.023	(0.270)	0.009	0.014
6	0.50	0.10	0.023	(0.269)	0.009	0.014
7	0.58	0.10	0.023	(0.268)	0.009	0.014
8	0.67	0.10	0.023	(0.267)	0.009	0.014
9	0.75	0.10	0.023	(0.266)	0.009	0.014
10	0.83	0.13	0.031	(0.265)	0.012	0.019
11	0.92	0.13	0.031	(0.264)	0.012	0.019
12	1.00	0.13	0.031	(0.263)	0.012	0.019
13	1.08	0.10	0.023	(0.262)	0.009	0.014
14	1.17	0.10	0.023	(0.261)	0.009	0.014
15	1.25	0.10	0.023	(0.260)	0.009	0.014
16	1.33	0.10	0.023	(0.259)	0.009	0.014
17	1.42	0.10	0.023	(0.258)	0.009	0.014
18	1.50	0.10	0.023	(0.257)	0.009	0.014
19	1.58	0.10	0.023	(0.255)	0.009	0.014
20	1.67	0.10	0.023	(0.254)	0.009	0.014
21	1.75	0.10	0.023	(0.253)	0.009	0.014
22	1.83	0.13	0.031	(0.252)	0.012	0.019
23	1.92	0.13	0.031	(0.251)	0.012	0.019
24	2.00	0.13	0.031	(0.250)	0.012	0.019
25	2.08	0.13	0.031	(0.249)	0.012	0.019
26	2.17	0.13	0.031	(0.248)	0.012	0.019
27	2.25	0.13	0.031	(0.247)	0.012	0.019
28	2.33	0.13	0.031	(0.246)	0.012	0.019
29	2.42	0.13	0.031	(0.245)	0.012	0.019
30	2.50	0.13	0.031	(0.244)	0.012	0.019
31	2.58	0.17	0.039	(0.243)	0.015	0.024
32	2.67	0.17	0.039	(0.242)	0.015	0.024
33	2.75	0.17	0.039	(0.241)	0.015	0.024
34	2.83	0.17	0.039	(0.240)	0.015	0.024
35	2.92	0.17	0.039	(0.239)	0.015	0.024
36	3.00	0.17	0.039	(0.238)	0.015	0.024
37	3.08	0.17	0.039	(0.237)	0.015	0.024
38	3.17	0.17	0.039	(0.236)	0.015	0.024
39	3.25	0.17	0.039	(0.235)	0.015	0.024
40	3.33	0.17	0.039	(0.234)	0.015	0.024
41	3.42	0.17	0.039	(0.233)	0.015	0.024
42	3.50	0.17	0.039	(0.232)	0.015	0.024
43	3.58	0.17	0.039	(0.232)	0.015	0.024
44	3.67	0.17	0.039	(0.231)	0.015	0.024
45	3.75	0.17	0.039	(0.230)	0.015	0.024
46	3.83	0.20	0.046	(0.229)	0.018	0.029
47	3.92	0.20	0.046	(0.228)	0.018	0.029
48	4.00	0.20	0.046	(0.227)	0.018	0.029
49	4.08	0.20	0.046	(0.226)	0.018	0.029
50	4.17	0.20	0.046	(0.225)	0.018	0.029
51	4.25	0.20	0.046	(0.224)	0.018	0.029
52	4.33	0.23	0.054	(0.223)	0.021	0.034
53	4.42	0.23	0.054	(0.222)	0.021	0.034
54	4.50	0.23	0.054	(0.221)	0.021	0.034
55	4.58	0.23	0.054	(0.220)	0.021	0.034
56	4.67	0.23	0.054	(0.219)	0.021	0.034
57	4.75	0.23	0.054	(0.218)	0.021	0.034
58	4.83	0.27	0.062	(0.217)	0.023	0.038

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

59	4.92	0.27	0.062	(0.216)	0.023	0.038
60	5.00	0.27	0.062	(0.215)	0.023	0.038
61	5.08	0.20	0.046	(0.214)	0.018	0.029
62	5.17	0.20	0.046	(0.213)	0.018	0.029
63	5.25	0.20	0.046	(0.212)	0.018	0.029
64	5.33	0.23	0.054	(0.212)	0.021	0.034
65	5.42	0.23	0.054	(0.211)	0.021	0.034
66	5.50	0.23	0.054	(0.210)	0.021	0.034
67	5.58	0.27	0.062	(0.209)	0.023	0.038
68	5.67	0.27	0.062	(0.208)	0.023	0.038
69	5.75	0.27	0.062	(0.207)	0.023	0.038
70	5.83	0.27	0.062	(0.206)	0.023	0.038
71	5.92	0.27	0.062	(0.205)	0.023	0.038
72	6.00	0.27	0.062	(0.204)	0.023	0.038
73	6.08	0.30	0.069	(0.203)	0.026	0.043
74	6.17	0.30	0.069	(0.202)	0.026	0.043
75	6.25	0.30	0.069	(0.202)	0.026	0.043
76	6.33	0.30	0.069	(0.201)	0.026	0.043
77	6.42	0.30	0.069	(0.200)	0.026	0.043
78	6.50	0.30	0.069	(0.199)	0.026	0.043
79	6.58	0.33	0.077	(0.198)	0.029	0.048
80	6.67	0.33	0.077	(0.197)	0.029	0.048
81	6.75	0.33	0.077	(0.196)	0.029	0.048
82	6.83	0.33	0.077	(0.195)	0.029	0.048
83	6.92	0.33	0.077	(0.194)	0.029	0.048
84	7.00	0.33	0.077	(0.193)	0.029	0.048
85	7.08	0.33	0.077	(0.193)	0.029	0.048
86	7.17	0.33	0.077	(0.192)	0.029	0.048
87	7.25	0.33	0.077	(0.191)	0.029	0.048
88	7.33	0.37	0.085	(0.190)	0.032	0.053
89	7.42	0.37	0.085	(0.189)	0.032	0.053
90	7.50	0.37	0.085	(0.188)	0.032	0.053
91	7.58	0.40	0.093	(0.187)	0.035	0.057
92	7.67	0.40	0.093	(0.187)	0.035	0.057
93	7.75	0.40	0.093	(0.186)	0.035	0.057
94	7.83	0.43	0.100	(0.185)	0.038	0.062
95	7.92	0.43	0.100	(0.184)	0.038	0.062
96	8.00	0.43	0.100	(0.183)	0.038	0.062
97	8.08	0.50	0.116	(0.182)	0.044	0.072
98	8.17	0.50	0.116	(0.181)	0.044	0.072
99	8.25	0.50	0.116	(0.181)	0.044	0.072
100	8.33	0.50	0.116	(0.180)	0.044	0.072
101	8.42	0.50	0.116	(0.179)	0.044	0.072
102	8.50	0.50	0.116	(0.178)	0.044	0.072
103	8.58	0.53	0.124	(0.177)	0.047	0.077
104	8.67	0.53	0.124	(0.176)	0.047	0.077
105	8.75	0.53	0.124	(0.176)	0.047	0.077
106	8.83	0.57	0.131	(0.175)	0.050	0.081
107	8.92	0.57	0.131	(0.174)	0.050	0.081
108	9.00	0.57	0.131	(0.173)	0.050	0.081
109	9.08	0.63	0.147	(0.172)	0.056	0.091
110	9.17	0.63	0.147	(0.171)	0.056	0.091
111	9.25	0.63	0.147	(0.171)	0.056	0.091
112	9.33	0.67	0.154	(0.170)	0.059	0.096
113	9.42	0.67	0.154	(0.169)	0.059	0.096
114	9.50	0.67	0.154	(0.168)	0.059	0.096
115	9.58	0.70	0.162	(0.167)	0.062	0.101
116	9.67	0.70	0.162	(0.167)	0.062	0.101
117	9.75	0.70	0.162	(0.166)	0.062	0.101
118	9.83	0.73	0.170	(0.165)	0.065	0.105

119	9.92	0.73	0.170	(0.164)	0.065	0.105
120	10.00	0.73	0.170	(0.163)	0.065	0.105
121	10.08	0.50	0.116	(0.163)	0.044	0.072
122	10.17	0.50	0.116	(0.162)	0.044	0.072
123	10.25	0.50	0.116	(0.161)	0.044	0.072
124	10.33	0.50	0.116	(0.160)	0.044	0.072
125	10.42	0.50	0.116	(0.159)	0.044	0.072
126	10.50	0.50	0.116	(0.159)	0.044	0.072
127	10.58	0.67	0.154	(0.158)	0.059	0.096
128	10.67	0.67	0.154	(0.157)	0.059	0.096
129	10.75	0.67	0.154	(0.156)	0.059	0.096
130	10.83	0.67	0.154	(0.156)	0.059	0.096
131	10.92	0.67	0.154	(0.155)	0.059	0.096
132	11.00	0.67	0.154	(0.154)	0.059	0.096
133	11.08	0.63	0.147	(0.153)	0.056	0.091
134	11.17	0.63	0.147	(0.153)	0.056	0.091
135	11.25	0.63	0.147	(0.152)	0.056	0.091
136	11.33	0.63	0.147	(0.151)	0.056	0.091
137	11.42	0.63	0.147	(0.150)	0.056	0.091
138	11.50	0.63	0.147	(0.150)	0.056	0.091
139	11.58	0.57	0.131	(0.149)	0.050	0.081
140	11.67	0.57	0.131	(0.148)	0.050	0.081
141	11.75	0.57	0.131	(0.147)	0.050	0.081
142	11.83	0.60	0.139	(0.147)	0.053	0.086
143	11.92	0.60	0.139	(0.146)	0.053	0.086
144	12.00	0.60	0.139	(0.145)	0.053	0.086
145	12.08	0.83	0.193	(0.144)	0.073	0.120
146	12.17	0.83	0.193	(0.144)	0.073	0.120
147	12.25	0.83	0.193	(0.143)	0.073	0.120
148	12.33	0.87	0.201	(0.142)	0.076	0.124
149	12.42	0.87	0.201	(0.142)	0.076	0.124
150	12.50	0.87	0.201	(0.141)	0.076	0.124
151	12.58	0.93	0.216	(0.140)	0.082	0.134
152	12.67	0.93	0.216	(0.139)	0.082	0.134
153	12.75	0.93	0.216	(0.139)	0.082	0.134
154	12.83	0.97	0.224	(0.138)	0.085	0.139
155	12.92	0.97	0.224	(0.137)	0.085	0.139
156	13.00	0.97	0.224	(0.137)	0.085	0.139
157	13.08	1.13	0.262	(0.136)	0.100	0.163
158	13.17	1.13	0.262	(0.135)	0.100	0.163
159	13.25	1.13	0.262	(0.135)	0.100	0.163
160	13.33	1.13	0.262	(0.134)	0.100	0.163
161	13.42	1.13	0.262	(0.133)	0.100	0.163
162	13.50	1.13	0.262	(0.133)	0.100	0.163
163	13.58	0.77	0.178	(0.132)	0.067	0.110
164	13.67	0.77	0.178	(0.131)	0.067	0.110
165	13.75	0.77	0.178	(0.130)	0.067	0.110
166	13.83	0.77	0.178	(0.130)	0.067	0.110
167	13.92	0.77	0.178	(0.129)	0.067	0.110
168	14.00	0.77	0.178	(0.129)	0.067	0.110
169	14.08	0.90	0.208	(0.128)	0.079	0.129
170	14.17	0.90	0.208	(0.127)	0.079	0.129
171	14.25	0.90	0.208	(0.127)	0.079	0.129
172	14.33	0.87	0.201	(0.126)	0.076	0.124
173	14.42	0.87	0.201	(0.125)	0.076	0.124
174	14.50	0.87	0.201	(0.125)	0.076	0.124
175	14.58	0.87	0.201	(0.124)	0.076	0.124
176	14.67	0.87	0.201	(0.123)	0.076	0.124
177	14.75	0.87	0.201	(0.123)	0.076	0.124
178	14.83	0.83	0.193	(0.122)	0.073	0.120

179	14.92	0.83	0.193	(0.121)	0.073	0.120
180	15.00	0.83	0.193	(0.121)	0.073	0.120
181	15.08	0.80	0.185	(0.120)	0.070	0.115
182	15.17	0.80	0.185	(0.120)	0.070	0.115
183	15.25	0.80	0.185	(0.119)	0.070	0.115
184	15.33	0.77	0.178	(0.118)	0.067	0.110
185	15.42	0.77	0.178	(0.118)	0.067	0.110
186	15.50	0.77	0.178	(0.117)	0.067	0.110
187	15.58	0.63	0.147	(0.117)	0.056	0.091
188	15.67	0.63	0.147	(0.116)	0.056	0.091
189	15.75	0.63	0.147	(0.115)	0.056	0.091
190	15.83	0.63	0.147	(0.115)	0.056	0.091
191	15.92	0.63	0.147	(0.114)	0.056	0.091
192	16.00	0.63	0.147	(0.114)	0.056	0.091
193	16.08	0.13	0.031	(0.113)	0.012	0.019
194	16.17	0.13	0.031	(0.112)	0.012	0.019
195	16.25	0.13	0.031	(0.112)	0.012	0.019
196	16.33	0.13	0.031	(0.111)	0.012	0.019
197	16.42	0.13	0.031	(0.111)	0.012	0.019
198	16.50	0.13	0.031	(0.110)	0.012	0.019
199	16.58	0.10	0.023	(0.110)	0.009	0.014
200	16.67	0.10	0.023	(0.109)	0.009	0.014
201	16.75	0.10	0.023	(0.109)	0.009	0.014
202	16.83	0.10	0.023	(0.108)	0.009	0.014
203	16.92	0.10	0.023	(0.107)	0.009	0.014
204	17.00	0.10	0.023	(0.107)	0.009	0.014
205	17.08	0.17	0.039	(0.106)	0.015	0.024
206	17.17	0.17	0.039	(0.106)	0.015	0.024
207	17.25	0.17	0.039	(0.105)	0.015	0.024
208	17.33	0.17	0.039	(0.105)	0.015	0.024
209	17.42	0.17	0.039	(0.104)	0.015	0.024
210	17.50	0.17	0.039	(0.104)	0.015	0.024
211	17.58	0.17	0.039	(0.103)	0.015	0.024
212	17.67	0.17	0.039	(0.103)	0.015	0.024
213	17.75	0.17	0.039	(0.102)	0.015	0.024
214	17.83	0.13	0.031	(0.102)	0.012	0.019
215	17.92	0.13	0.031	(0.101)	0.012	0.019
216	18.00	0.13	0.031	(0.101)	0.012	0.019
217	18.08	0.13	0.031	(0.100)	0.012	0.019
218	18.17	0.13	0.031	(0.100)	0.012	0.019
219	18.25	0.13	0.031	(0.099)	0.012	0.019
220	18.33	0.13	0.031	(0.099)	0.012	0.019
221	18.42	0.13	0.031	(0.098)	0.012	0.019
222	18.50	0.13	0.031	(0.098)	0.012	0.019
223	18.58	0.10	0.023	(0.097)	0.009	0.014
224	18.67	0.10	0.023	(0.097)	0.009	0.014
225	18.75	0.10	0.023	(0.096)	0.009	0.014
226	18.83	0.07	0.015	(0.096)	0.006	0.010
227	18.92	0.07	0.015	(0.095)	0.006	0.010
228	19.00	0.07	0.015	(0.095)	0.006	0.010
229	19.08	0.10	0.023	(0.094)	0.009	0.014
230	19.17	0.10	0.023	(0.094)	0.009	0.014
231	19.25	0.10	0.023	(0.094)	0.009	0.014
232	19.33	0.13	0.031	(0.093)	0.012	0.019
233	19.42	0.13	0.031	(0.093)	0.012	0.019
234	19.50	0.13	0.031	(0.092)	0.012	0.019
235	19.58	0.10	0.023	(0.092)	0.009	0.014
236	19.67	0.10	0.023	(0.091)	0.009	0.014
237	19.75	0.10	0.023	(0.091)	0.009	0.014
238	19.83	0.07	0.015	(0.091)	0.006	0.010

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 Peak flow rate of this hydrograph = 1.789(CFS)

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24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

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 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
10.0						
0+ 5	0.0003	0.05	Q	|	|	|
0+10	0.0010	0.10	Q	|	|	|
0+15	0.0017	0.10	Q	|	|	|
0+20	0.0026	0.13	Q	|	|	|
0+25	0.0037	0.15	Q	|	|	|
0+30	0.0048	0.16	Q	|	|	|
0+35	0.0058	0.16	Q	|	|	|
0+40	0.0069	0.16	Q	|	|	|
0+45	0.0080	0.16	Q	|	|	|
0+50	0.0093	0.18	Q	|	|	|
0+55	0.0107	0.21	Q	|	|	|
1+ 0	0.0121	0.21	Q	|	|	|
1+ 5	0.0134	0.19	Q	|	|	|
1+10	0.0145	0.16	Q	|	|	|
1+15	0.0156	0.16	Q	|	|	|
1+20	0.0167	0.16	Q	|	|	|
1+25	0.0178	0.16	Q			
1+30	0.0189	0.16	Q			
1+35	0.0200	0.16	Q			
1+40	0.0211	0.16	Q			
1+45	0.0221	0.16	Q			

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1+50	0.0234	0.18	Q			
1+55	0.0248	0.21	Q			
2+ 0	0.0263	0.21	Q			
2+ 5	0.0277	0.21	QV			
2+10	0.0292	0.21	QV			
2+15	0.0306	0.21	QV			
2+20	0.0321	0.21	QV	|	|	|
2+25	0.0335	0.21	QV	|	|	|
2+30	0.0350	0.21	QV	|	|	|
2+35	0.0366	0.23	QV	|	|	|
2+40	0.0384	0.26	|Q	|	|	|
2+45	0.0402	0.26	|Q	|	|	|
2+50	0.0420	0.26	|Q	|	|	|
2+55	0.0438	0.26	|Q	|	|	|
3+ 0	0.0456	0.26	|Q	|	|	|
3+ 5	0.0474	0.26	|Q	|	|	|
3+10	0.0492	0.26	|Q	|	|	|
3+15	0.0510	0.26	|Q	|	|	|
3+20	0.0529	0.26	|Q	|	|	|
3+25	0.0547	0.26	|QV	|	|	|
3+30	0.0565	0.26	|QV	|	|	|
3+35	0.0583	0.26	|QV	|	|	|
3+40	0.0601	0.26	|QV	|	|	|
3+45	0.0619	0.26	|QV	|	|	|
3+50	0.0639	0.29	|QV	|	|	|
3+55	0.0660	0.31	QV			
4+ 0	0.0682	0.32	QV			
4+ 5	0.0704	0.32	QV			
4+10	0.0725	0.32	QV			
4+15	0.0747	0.32	QV			

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4+20	0.0771	0.34	QV			
4+25	0.0796	0.36	QV			
4+30	0.0821	0.37	Q V			
4+35	0.0846	0.37	Q V			
4+40	0.0872	0.37	Q V			
4+45	0.0897	0.37	|Q V	|	|	|
4+50	0.0924	0.39	|Q V	|	|	|
4+55	0.0953	0.42	|Q V	|	|	|
5+ 0	0.0982	0.42	|Q V	|	|	|
5+ 5	0.1008	0.37	|Q V	|	|	|
5+10	0.1030	0.32	|Q V	|	|	|
5+15	0.1052	0.32	|Q V	|	|	|
5+20	0.1075	0.34	|Q V	|	|	|
5+25	0.1100	0.36	|Q V	|	|	|
5+30	0.1125	0.37	|Q V	|	|	|
5+35	0.1152	0.39	|Q V	|	|	|
5+40	0.1181	0.42	|Q V	|	|	|
5+45	0.1210	0.42	|Q V	|	|	|
5+50	0.1239	0.42	|Q V	|	|	|
5+55	0.1268	0.42	|Q V	|	|	|
6+ 0	0.1297	0.42	|Q V	|	|	|
6+ 5	0.1328	0.44	|Q V	|	|	|
6+10	0.1360	0.47	|Q V	|	|	|
6+15	0.1393	0.47	|Q V	|	|	|
6+20	0.1425	0.47	|Q V	|	|	|
6+25	0.1458	0.47	Q V			
6+30	0.1490	0.47	Q V			
6+35	0.1525	0.50	Q V			
6+40	0.1561	0.52	Q V			
6+45	0.1597	0.53	Q V			

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6+50	0.1633	0.53		Q	V			
6+55	0.1669	0.53		Q	V			
7+ 0	0.1706	0.53		Q	V			
7+ 5	0.1742	0.53		Q	V			
7+10	0.1778	0.53		Q	V			
7+15	0.1814	0.53	|	Q	V	|	|	|
7+20	0.1852	0.55	|	Q	V	|	|	|
7+25	0.1892	0.58	|	Q	V	|	|	|
7+30	0.1931	0.58	|	Q	V	|	|	|
7+35	0.1973	0.60	|	Q	V	|	|	|
7+40	0.2016	0.63	|	Q	V	|	|	|
7+45	0.2060	0.63	|	Q	V	|	|	|
7+50	0.2105	0.65	|	Q	V	|	|	|
7+55	0.2152	0.68	|	Q	V	|	|	|
8+ 0	0.2199	0.68	|	Q	V	|	|	|
8+ 5	0.2249	0.73	|	Q	V	|	|	|
8+10	0.2303	0.78	|	Q	V	|	|	|
8+15	0.2357	0.79	|	Q	V	|	|	|
8+20	0.2412	0.79	|	Q	V	|	|	|
8+25	0.2466	0.79	|	Q	V	|	|	|
8+30	0.2520	0.79	|	Q	V	|	|	|
8+35	0.2576	0.81	|	Q	V	|	|	|
8+40	0.2634	0.84	|	Q	V	|	|	|
8+45	0.2692	0.84	|	Q	V	|	|	|
8+50	0.2751	0.87	|	Q	V	|	|	|
8+55	0.2813	0.89		Q	V			
9+ 0	0.2874	0.89		Q	V			
9+ 5	0.2939	0.94		Q	V			
9+10	0.3008	0.99		Q	V			
9+15	0.3076	1.00		Q	V			

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9+20	0.3147	1.02		Q		V			
9+25	0.3219	1.05		Q		V			
9+30	0.3291	1.05		Q		V			
9+35	0.3366	1.08		Q		V			
9+40	0.3441	1.10		Q		V			
9+45	0.3517	1.10	|	Q	|	V	|		|
9+50	0.3595	1.13	|	Q	|	V	|		|
9+55	0.3675	1.15	|	Q	|	V	|		|
10+ 0	0.3754	1.16	|	Q	|	V	|		|
10+ 5	0.3823	0.99	|	Q	|	V	|		|
10+10	0.3879	0.81	|	Q	|	V	|		|
10+15	0.3933	0.79	|	Q	|	V	|		|
10+20	0.3988	0.79	|	Q	|	V	|		|
10+25	0.4042	0.79	|	Q	|	V	|		|
10+30	0.4096	0.79	|	Q	|	V	|		|
10+35	0.4159	0.91	|	Q	|	V	|		|
10+40	0.4230	1.04	|	Q	|	V	|		|
10+45	0.4302	1.05	|	Q	|	V	|		|
10+50	0.4375	1.05	|	Q	|	V	|		|
10+55	0.4447	1.05	|	Q	|	V	|		|
11+ 0	0.4520	1.05	|	Q	|	V	|		|
11+ 5	0.4590	1.03	|	Q	|	V	|		|
11+10	0.4660	1.00	|	Q	|	V	|		|
11+15	0.4728	1.00	|	Q	|	V	|		|
11+20	0.4797	1.00	|	Q	|	V	|		|
11+25	0.4866	1.00		Q		V			
11+30	0.4935	1.00		Q		V			
11+35	0.5001	0.95		Q		V			
11+40	0.5063	0.90		Q		V			
11+45	0.5124	0.90		Q		V			

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11+50	0.5187	0.92	Q	V
11+55	0.5252	0.94	Q	V
12+ 0	0.5318	0.95	Q	V
12+ 5	0.5394	1.11	Q	V
12+10	0.5483	1.29	Q	V
12+15	0.5573	1.31	Q	V
12+20	0.5666	1.34	Q	V
12+25	0.5760	1.36	Q	V
12+30	0.5854	1.37	Q	V
12+35	0.5951	1.41	Q	V
12+40	0.6052	1.47	Q	V
12+45	0.6154	1.47	Q	V
12+50	0.6257	1.50	Q	V
12+55	0.6362	1.52	Q	V
13+ 0	0.6467	1.53	Q	V
13+ 5	0.6580	1.64	Q	V
13+10	0.6702	1.77	Q	V
13+15	0.6825	1.79	Q	V
13+20	0.6948	1.79	Q	V
13+25	0.7071	1.79	Q	V
13+30	0.7194	1.79	Q	V
13+35	0.7300	1.53	Q	V
13+40	0.7386	1.25	Q	V
13+45	0.7469	1.21	Q	V
13+50	0.7553	1.21	Q	V
13+55	0.7636	1.21	Q	V
14+ 0	0.7719	1.21	Q	V
14+ 5	0.7809	1.30	Q	V
14+10	0.7906	1.41	Q	V
14+15	0.8004	1.42	Q	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+20	0.8100	1.40	|	Q	|	|	V|
14+25	0.8194	1.37	|	Q	|	|	V
14+30	0.8288	1.37	|	Q	|	|	V
14+35	0.8383	1.37	|	Q	|	|	V
14+40	0.8477	1.37	|	Q	|	|	|V
14+45	0.8571	1.37	|	Q	|	|	|V
14+50	0.8664	1.34	|	Q	|	|	|V
14+55	0.8754	1.32	|	Q	|	|	| V
15+ 0	0.8845	1.32	|	Q	|	|	| V
15+ 5	0.8934	1.29	|	Q	|	|	| V
15+10	0.9021	1.27	|	Q	|	|	| V
15+15	0.9108	1.26	|	Q	|	|	| V
15+20	0.9193	1.24	|	Q	|	|	| V
15+25	0.9277	1.21	|	Q	|	|	| V
15+30	0.9360	1.21	|	Q	|	|	| V
15+35	0.9437	1.12	|	Q	|	|	| V
15+40	0.9507	1.01	|	Q	|	|	| V
15+45	0.9576	1.00	|	Q	|	|	| V
15+50	0.9645	1.00	|	Q	|	|	| V
15+55	0.9714	1.00	|	Q	|	|	| V
16+ 0	0.9782	1.00	|	Q	|	|	| V
16+ 5	0.9827	0.65	|	Q	|	|	| V
16+10	0.9845	0.26	|	Q	|	|	| V
16+15	0.9860	0.22	Q	|	|	|	| V
16+20	0.9874	0.21	Q	|	|	|	| V
16+25	0.9889	0.21	Q				V
16+30	0.9903	0.21	Q				V
16+35	0.9916	0.19	Q				V
16+40	0.9927	0.16	Q				V
16+45	0.9938	0.16	Q				V

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16+50	0.9949	0.16	Q				V
16+55	0.9960	0.16	Q				V
17+ 0	0.9971	0.16	Q				V
17+ 5	0.9985	0.20	Q				V
17+10	1.0003	0.26	Q				V
17+15	1.0021	0.26	|Q	|	|	|	V
17+20	1.0039	0.26	|Q	|	|	|	V
17+25	1.0057	0.26	|Q	|	|	|	V
17+30	1.0075	0.26	|Q	|	|	|	V
17+35	1.0093	0.26	|Q	|	|	|	V
17+40	1.0111	0.26	|Q	|	|	|	V
17+45	1.0129	0.26	|Q	|	|	|	V
17+50	1.0146	0.24	Q	|	|	|	V
17+55	1.0161	0.21	Q	|	|	|	V
18+ 0	1.0175	0.21	Q	|	|	|	V
18+ 5	1.0190	0.21	Q	|	|	|	V
18+10	1.0204	0.21	Q	|	|	|	V
18+15	1.0219	0.21	Q	|	|	|	V
18+20	1.0233	0.21	Q	|	|	|	V
18+25	1.0248	0.21	Q	|	|	|	V
18+30	1.0262	0.21	Q	|	|	|	V
18+35	1.0275	0.19	Q	|	|	|	V
18+40	1.0286	0.16	Q	|	|	|	V
18+45	1.0297	0.16	Q	|	|	|	V
18+50	1.0306	0.13	Q	|	|	|	V
18+55	1.0314	0.11	Q	|	|	|	V
19+ 0	1.0321	0.11	Q	|	|	|	V
19+ 5	1.0330	0.13	Q	|	|	|	V
19+10	1.0340	0.15	Q	|	|	|	V
19+15	1.0351	0.16	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

	19+20	1.0364	0.18	Q	|	|	|	V
|	19+25	1.0378	0.21	Q	|	|	|	V
|	19+30	1.0392	0.21	Q	|	|	|	V
|	19+35	1.0405	0.19	Q	|	|	|	V
|	19+40	1.0416	0.16	Q	|	|	|	V
|	19+45	1.0427	0.16	Q	|	|	|	V
|	19+50	1.0437	0.13	Q	|	|	|	V
|	19+55	1.0444	0.11	Q	|	|	|	V
|	20+ 0	1.0451	0.11	Q	|	|	|	V
|	20+ 5	1.0460	0.13	Q	|	|	|	V
|	20+10	1.0471	0.15	Q	|	|	|	V
|	20+15	1.0482	0.16	Q	|	|	|	V
|	20+20	1.0493	0.16	Q	|	|	|	V
|	20+25	1.0503	0.16	Q	|	|	|	V
|	20+30	1.0514	0.16	Q	|	|	|	V
|	20+35	1.0525	0.16	Q	|	|	|	V
|	20+40	1.0536	0.16	Q	|	|	|	V
|	20+45	1.0547	0.16	Q	|	|	|	V
|	20+50	1.0556	0.13	Q	|	|	|	V
|	20+55	1.0564	0.11	Q	|	|	|	V
|	21+ 0	1.0571	0.11	Q	|	|	|	V
|	21+ 5	1.0580	0.13	Q	|	|	|	V
|	21+10	1.0590	0.15	Q	|	|	|	V
|	21+15	1.0601	0.16	Q	|	|	|	V
V|	21+20	1.0610	0.13	Q	|	|	|	V
V|	21+25	1.0618	0.11	Q	|	|	|	V
V|	21+30	1.0625	0.11	Q	|	|	|	V
V|	21+35	1.0634	0.13	Q	|	|	|	V
V|	21+40	1.0645	0.15	Q	|	|	|	V
V|	21+45	1.0656	0.16	Q	|	|	|	V

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

V|	21+50	1.0665	0.13	Q	|	|	|
V|	21+55	1.0672	0.11	Q	|	|	|
V|	22+ 0	1.0680	0.11	Q	|	|	|
V|	22+ 5	1.0688	0.13	Q	|	|	|
V|	22+10	1.0699	0.15	Q	|	|	|
V|	22+15	1.0710	0.16	Q	|	|	|
V|	22+20	1.0719	0.13	Q	|	|	|
V|	22+25	1.0727	0.11	Q	|	|	|
V|	22+30	1.0734	0.11	Q	|	|	|
V|	22+35	1.0741	0.11	Q	|	|	|
V|	22+40	1.0748	0.11	Q	|	|	|
V|	22+45	1.0756	0.11	Q	|	|	|
V|	22+50	1.0763	0.11	Q	|	|	|
V|	22+55	1.0770	0.11	Q	|	|	|
V|	23+ 0	1.0777	0.11	Q	|	|	|
V|	23+ 5	1.0785	0.11	Q	|	|	|
V|	23+10	1.0792	0.11	Q	|	|	|
V|	23+15	1.0799	0.11	Q	|	|	|
V|	23+20	1.0806	0.11	Q	|	|	|
V|	23+25	1.0814	0.11	Q	|	|	|
V|	23+30	1.0821	0.11	Q	|	|	|
V|	23+35	1.0828	0.11	Q	|	|	|
V|	23+40	1.0835	0.11	Q	|	|	|
V|	23+45	1.0843	0.11	Q	|	|	|
V|	23+50	1.0850	0.11	Q	|	|	|
V|	23+55	1.0857	0.11	Q	|	|	|
V|	24+ 0	1.0864	0.11	Q	|	|	|
V|	24+ 5	1.0868	0.06	Q	|	|	|
V|	24+10	1.0869	0.01	Q	|	|	|
V|	24+15	1.0869	0.00	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Unit Hydrograph Analysis

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8.2

Study date 11/09/21 File: moval33post242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6232

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Gateway Heights
Proposed Condition
Unit Hydrograph
Area A

--
0.006 Sq. Mi.
(Ft.)
Mi.
Drainage Area = 4.00(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.00(Ac.) =
Length along longest watercourse = 1159.00(Ft.)
Length along longest watercourse measured to centroid = 637.00
Length along longest watercourse = 0.220 Mi.
Length along longest watercourse measured to centroid = 0.121
Difference in elevation = 70.00(Ft.)
Slope along watercourse = 318.8956 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.030 Hr.
Lag time = 1.82 Min.
25% of lag time = 0.45 Min.
40% of lag time = 0.73 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

4.00 1.93 7.72

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
 4.00 4.64 18.56

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 1.930(In)
 Area Averaged 100-Year Rainfall = 4.640(In)

Point rain (area averaged) = 1.930(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.930(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 4.000 69.00 0.650
 Total Area Entered = 4.00(Ac.)

RI (In/Hr)	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F
69.0	69.0	0.373	0.650	0.155	1.000	
0.155						Sum (F) =
0.155						

Area averaged mean soil loss (F) (In/Hr) = 0.155
 Minimum soil loss rate ((In/Hr)) = 0.077
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.380

Unit Hydrograph
 FOOTHILL S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	275.097	54.570
2	0.167	550.195	42.583
3	0.250	825.292	2.846
		Sum = 100.000	Sum= 4.031

The following loss rate calculations reflect use of the minimum
 calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective
 Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)	Effective
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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.07	0.015	(0.274)	0.006	0.010
2	0.17	0.07	0.015	(0.273)	0.006	0.010
3	0.25	0.07	0.015	(0.272)	0.006	0.010
4	0.33	0.10	0.023	(0.271)	0.009	0.014
5	0.42	0.10	0.023	(0.270)	0.009	0.014
6	0.50	0.10	0.023	(0.269)	0.009	0.014
7	0.58	0.10	0.023	(0.268)	0.009	0.014
8	0.67	0.10	0.023	(0.267)	0.009	0.014
9	0.75	0.10	0.023	(0.266)	0.009	0.014
10	0.83	0.13	0.031	(0.265)	0.012	0.019
11	0.92	0.13	0.031	(0.264)	0.012	0.019
12	1.00	0.13	0.031	(0.263)	0.012	0.019
13	1.08	0.10	0.023	(0.262)	0.009	0.014
14	1.17	0.10	0.023	(0.261)	0.009	0.014
15	1.25	0.10	0.023	(0.260)	0.009	0.014
16	1.33	0.10	0.023	(0.259)	0.009	0.014
17	1.42	0.10	0.023	(0.258)	0.009	0.014
18	1.50	0.10	0.023	(0.257)	0.009	0.014
19	1.58	0.10	0.023	(0.255)	0.009	0.014
20	1.67	0.10	0.023	(0.254)	0.009	0.014
21	1.75	0.10	0.023	(0.253)	0.009	0.014
22	1.83	0.13	0.031	(0.252)	0.012	0.019
23	1.92	0.13	0.031	(0.251)	0.012	0.019
24	2.00	0.13	0.031	(0.250)	0.012	0.019
25	2.08	0.13	0.031	(0.249)	0.012	0.019
26	2.17	0.13	0.031	(0.248)	0.012	0.019
27	2.25	0.13	0.031	(0.247)	0.012	0.019
28	2.33	0.13	0.031	(0.246)	0.012	0.019
29	2.42	0.13	0.031	(0.245)	0.012	0.019
30	2.50	0.13	0.031	(0.244)	0.012	0.019
31	2.58	0.17	0.039	(0.243)	0.015	0.024
32	2.67	0.17	0.039	(0.242)	0.015	0.024
33	2.75	0.17	0.039	(0.241)	0.015	0.024
34	2.83	0.17	0.039	(0.240)	0.015	0.024
35	2.92	0.17	0.039	(0.239)	0.015	0.024
36	3.00	0.17	0.039	(0.238)	0.015	0.024
37	3.08	0.17	0.039	(0.237)	0.015	0.024
38	3.17	0.17	0.039	(0.236)	0.015	0.024
39	3.25	0.17	0.039	(0.235)	0.015	0.024
40	3.33	0.17	0.039	(0.234)	0.015	0.024
41	3.42	0.17	0.039	(0.233)	0.015	0.024
42	3.50	0.17	0.039	(0.232)	0.015	0.024
43	3.58	0.17	0.039	(0.232)	0.015	0.024
44	3.67	0.17	0.039	(0.231)	0.015	0.024
45	3.75	0.17	0.039	(0.230)	0.015	0.024
46	3.83	0.20	0.046	(0.229)	0.018	0.029
47	3.92	0.20	0.046	(0.228)	0.018	0.029
48	4.00	0.20	0.046	(0.227)	0.018	0.029
49	4.08	0.20	0.046	(0.226)	0.018	0.029
50	4.17	0.20	0.046	(0.225)	0.018	0.029
51	4.25	0.20	0.046	(0.224)	0.018	0.029
52	4.33	0.23	0.054	(0.223)	0.021	0.034
53	4.42	0.23	0.054	(0.222)	0.021	0.034
54	4.50	0.23	0.054	(0.221)	0.021	0.034
55	4.58	0.23	0.054	(0.220)	0.021	0.034
56	4.67	0.23	0.054	(0.219)	0.021	0.034
57	4.75	0.23	0.054	(0.218)	0.021	0.034
58	4.83	0.27	0.062	(0.217)	0.023	0.038
59	4.92	0.27	0.062	(0.216)	0.023	0.038

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

60	5.00	0.27	0.062	(0.215)	0.023	0.038
61	5.08	0.20	0.046	(0.214)	0.018	0.029
62	5.17	0.20	0.046	(0.213)	0.018	0.029
63	5.25	0.20	0.046	(0.212)	0.018	0.029
64	5.33	0.23	0.054	(0.212)	0.021	0.034
65	5.42	0.23	0.054	(0.211)	0.021	0.034
66	5.50	0.23	0.054	(0.210)	0.021	0.034
67	5.58	0.27	0.062	(0.209)	0.023	0.038
68	5.67	0.27	0.062	(0.208)	0.023	0.038
69	5.75	0.27	0.062	(0.207)	0.023	0.038
70	5.83	0.27	0.062	(0.206)	0.023	0.038
71	5.92	0.27	0.062	(0.205)	0.023	0.038
72	6.00	0.27	0.062	(0.204)	0.023	0.038
73	6.08	0.30	0.069	(0.203)	0.026	0.043
74	6.17	0.30	0.069	(0.202)	0.026	0.043
75	6.25	0.30	0.069	(0.202)	0.026	0.043
76	6.33	0.30	0.069	(0.201)	0.026	0.043
77	6.42	0.30	0.069	(0.200)	0.026	0.043
78	6.50	0.30	0.069	(0.199)	0.026	0.043
79	6.58	0.33	0.077	(0.198)	0.029	0.048
80	6.67	0.33	0.077	(0.197)	0.029	0.048
81	6.75	0.33	0.077	(0.196)	0.029	0.048
82	6.83	0.33	0.077	(0.195)	0.029	0.048
83	6.92	0.33	0.077	(0.194)	0.029	0.048
84	7.00	0.33	0.077	(0.193)	0.029	0.048
85	7.08	0.33	0.077	(0.193)	0.029	0.048
86	7.17	0.33	0.077	(0.192)	0.029	0.048
87	7.25	0.33	0.077	(0.191)	0.029	0.048
88	7.33	0.37	0.085	(0.190)	0.032	0.053
89	7.42	0.37	0.085	(0.189)	0.032	0.053
90	7.50	0.37	0.085	(0.188)	0.032	0.053
91	7.58	0.40	0.093	(0.187)	0.035	0.057
92	7.67	0.40	0.093	(0.187)	0.035	0.057
93	7.75	0.40	0.093	(0.186)	0.035	0.057
94	7.83	0.43	0.100	(0.185)	0.038	0.062
95	7.92	0.43	0.100	(0.184)	0.038	0.062
96	8.00	0.43	0.100	(0.183)	0.038	0.062
97	8.08	0.50	0.116	(0.182)	0.044	0.072
98	8.17	0.50	0.116	(0.181)	0.044	0.072
99	8.25	0.50	0.116	(0.181)	0.044	0.072
100	8.33	0.50	0.116	(0.180)	0.044	0.072
101	8.42	0.50	0.116	(0.179)	0.044	0.072
102	8.50	0.50	0.116	(0.178)	0.044	0.072
103	8.58	0.53	0.124	(0.177)	0.047	0.077
104	8.67	0.53	0.124	(0.176)	0.047	0.077
105	8.75	0.53	0.124	(0.176)	0.047	0.077
106	8.83	0.57	0.131	(0.175)	0.050	0.081
107	8.92	0.57	0.131	(0.174)	0.050	0.081
108	9.00	0.57	0.131	(0.173)	0.050	0.081
109	9.08	0.63	0.147	(0.172)	0.056	0.091
110	9.17	0.63	0.147	(0.171)	0.056	0.091
111	9.25	0.63	0.147	(0.171)	0.056	0.091
112	9.33	0.67	0.154	(0.170)	0.059	0.096
113	9.42	0.67	0.154	(0.169)	0.059	0.096
114	9.50	0.67	0.154	(0.168)	0.059	0.096
115	9.58	0.70	0.162	(0.167)	0.062	0.101
116	9.67	0.70	0.162	(0.167)	0.062	0.101
117	9.75	0.70	0.162	(0.166)	0.062	0.101
118	9.83	0.73	0.170	(0.165)	0.065	0.105
119	9.92	0.73	0.170	(0.164)	0.065	0.105

120	10.00	0.73	0.170	(0.163)	0.065	0.105
121	10.08	0.50	0.116	(0.163)	0.044	0.072
122	10.17	0.50	0.116	(0.162)	0.044	0.072
123	10.25	0.50	0.116	(0.161)	0.044	0.072
124	10.33	0.50	0.116	(0.160)	0.044	0.072
125	10.42	0.50	0.116	(0.159)	0.044	0.072
126	10.50	0.50	0.116	(0.159)	0.044	0.072
127	10.58	0.67	0.154	(0.158)	0.059	0.096
128	10.67	0.67	0.154	(0.157)	0.059	0.096
129	10.75	0.67	0.154	(0.156)	0.059	0.096
130	10.83	0.67	0.154	(0.156)	0.059	0.096
131	10.92	0.67	0.154	(0.155)	0.059	0.096
132	11.00	0.67	0.154	(0.154)	0.059	0.096
133	11.08	0.63	0.147	(0.153)	0.056	0.091
134	11.17	0.63	0.147	(0.153)	0.056	0.091
135	11.25	0.63	0.147	(0.152)	0.056	0.091
136	11.33	0.63	0.147	(0.151)	0.056	0.091
137	11.42	0.63	0.147	(0.150)	0.056	0.091
138	11.50	0.63	0.147	(0.150)	0.056	0.091
139	11.58	0.57	0.131	(0.149)	0.050	0.081
140	11.67	0.57	0.131	(0.148)	0.050	0.081
141	11.75	0.57	0.131	(0.147)	0.050	0.081
142	11.83	0.60	0.139	(0.147)	0.053	0.086
143	11.92	0.60	0.139	(0.146)	0.053	0.086
144	12.00	0.60	0.139	(0.145)	0.053	0.086
145	12.08	0.83	0.193	(0.144)	0.073	0.120
146	12.17	0.83	0.193	(0.144)	0.073	0.120
147	12.25	0.83	0.193	(0.143)	0.073	0.120
148	12.33	0.87	0.201	(0.142)	0.076	0.124
149	12.42	0.87	0.201	(0.142)	0.076	0.124
150	12.50	0.87	0.201	(0.141)	0.076	0.124
151	12.58	0.93	0.216	(0.140)	0.082	0.134
152	12.67	0.93	0.216	(0.139)	0.082	0.134
153	12.75	0.93	0.216	(0.139)	0.082	0.134
154	12.83	0.97	0.224	(0.138)	0.085	0.139
155	12.92	0.97	0.224	(0.137)	0.085	0.139
156	13.00	0.97	0.224	(0.137)	0.085	0.139
157	13.08	1.13	0.262	(0.136)	0.100	0.163
158	13.17	1.13	0.262	(0.135)	0.100	0.163
159	13.25	1.13	0.262	(0.135)	0.100	0.163
160	13.33	1.13	0.262	(0.134)	0.100	0.163
161	13.42	1.13	0.262	(0.133)	0.100	0.163
162	13.50	1.13	0.262	(0.133)	0.100	0.163
163	13.58	0.77	0.178	(0.132)	0.067	0.110
164	13.67	0.77	0.178	(0.131)	0.067	0.110
165	13.75	0.77	0.178	(0.130)	0.067	0.110
166	13.83	0.77	0.178	(0.130)	0.067	0.110
167	13.92	0.77	0.178	(0.129)	0.067	0.110
168	14.00	0.77	0.178	(0.129)	0.067	0.110
169	14.08	0.90	0.208	(0.128)	0.079	0.129
170	14.17	0.90	0.208	(0.127)	0.079	0.129
171	14.25	0.90	0.208	(0.127)	0.079	0.129
172	14.33	0.87	0.201	(0.126)	0.076	0.124
173	14.42	0.87	0.201	(0.125)	0.076	0.124
174	14.50	0.87	0.201	(0.125)	0.076	0.124
175	14.58	0.87	0.201	(0.124)	0.076	0.124
176	14.67	0.87	0.201	(0.123)	0.076	0.124
177	14.75	0.87	0.201	(0.123)	0.076	0.124
178	14.83	0.83	0.193	(0.122)	0.073	0.120
179	14.92	0.83	0.193	(0.121)	0.073	0.120

180	15.00	0.83	0.193	(0.121)	0.073	0.120
181	15.08	0.80	0.185	(0.120)	0.070	0.115
182	15.17	0.80	0.185	(0.120)	0.070	0.115
183	15.25	0.80	0.185	(0.119)	0.070	0.115
184	15.33	0.77	0.178	(0.118)	0.067	0.110
185	15.42	0.77	0.178	(0.118)	0.067	0.110
186	15.50	0.77	0.178	(0.117)	0.067	0.110
187	15.58	0.63	0.147	(0.117)	0.056	0.091
188	15.67	0.63	0.147	(0.116)	0.056	0.091
189	15.75	0.63	0.147	(0.115)	0.056	0.091
190	15.83	0.63	0.147	(0.115)	0.056	0.091
191	15.92	0.63	0.147	(0.114)	0.056	0.091
192	16.00	0.63	0.147	(0.114)	0.056	0.091
193	16.08	0.13	0.031	(0.113)	0.012	0.019
194	16.17	0.13	0.031	(0.112)	0.012	0.019
195	16.25	0.13	0.031	(0.112)	0.012	0.019
196	16.33	0.13	0.031	(0.111)	0.012	0.019
197	16.42	0.13	0.031	(0.111)	0.012	0.019
198	16.50	0.13	0.031	(0.110)	0.012	0.019
199	16.58	0.10	0.023	(0.110)	0.009	0.014
200	16.67	0.10	0.023	(0.109)	0.009	0.014
201	16.75	0.10	0.023	(0.109)	0.009	0.014
202	16.83	0.10	0.023	(0.108)	0.009	0.014
203	16.92	0.10	0.023	(0.107)	0.009	0.014
204	17.00	0.10	0.023	(0.107)	0.009	0.014
205	17.08	0.17	0.039	(0.106)	0.015	0.024
206	17.17	0.17	0.039	(0.106)	0.015	0.024
207	17.25	0.17	0.039	(0.105)	0.015	0.024
208	17.33	0.17	0.039	(0.105)	0.015	0.024
209	17.42	0.17	0.039	(0.104)	0.015	0.024
210	17.50	0.17	0.039	(0.104)	0.015	0.024
211	17.58	0.17	0.039	(0.103)	0.015	0.024
212	17.67	0.17	0.039	(0.103)	0.015	0.024
213	17.75	0.17	0.039	(0.102)	0.015	0.024
214	17.83	0.13	0.031	(0.102)	0.012	0.019
215	17.92	0.13	0.031	(0.101)	0.012	0.019
216	18.00	0.13	0.031	(0.101)	0.012	0.019
217	18.08	0.13	0.031	(0.100)	0.012	0.019
218	18.17	0.13	0.031	(0.100)	0.012	0.019
219	18.25	0.13	0.031	(0.099)	0.012	0.019
220	18.33	0.13	0.031	(0.099)	0.012	0.019
221	18.42	0.13	0.031	(0.098)	0.012	0.019
222	18.50	0.13	0.031	(0.098)	0.012	0.019
223	18.58	0.10	0.023	(0.097)	0.009	0.014
224	18.67	0.10	0.023	(0.097)	0.009	0.014
225	18.75	0.10	0.023	(0.096)	0.009	0.014
226	18.83	0.07	0.015	(0.096)	0.006	0.010
227	18.92	0.07	0.015	(0.095)	0.006	0.010
228	19.00	0.07	0.015	(0.095)	0.006	0.010
229	19.08	0.10	0.023	(0.094)	0.009	0.014
230	19.17	0.10	0.023	(0.094)	0.009	0.014
231	19.25	0.10	0.023	(0.094)	0.009	0.014
232	19.33	0.13	0.031	(0.093)	0.012	0.019
233	19.42	0.13	0.031	(0.093)	0.012	0.019
234	19.50	0.13	0.031	(0.092)	0.012	0.019
235	19.58	0.10	0.023	(0.092)	0.009	0.014
236	19.67	0.10	0.023	(0.091)	0.009	0.014
237	19.75	0.10	0.023	(0.091)	0.009	0.014
238	19.83	0.07	0.015	(0.091)	0.006	0.010
239	19.92	0.07	0.015	(0.090)	0.006	0.010

240	20.00	0.07	0.015	(0.090)	0.006	0.010
241	20.08	0.10	0.023	(0.089)	0.009	0.014
242	20.17	0.10	0.023	(0.089)	0.009	0.014
243	20.25	0.10	0.023	(0.089)	0.009	0.014
244	20.33	0.10	0.023	(0.088)	0.009	0.014
245	20.42	0.10	0.023	(0.088)	0.009	0.014
246	20.50	0.10	0.023	(0.088)	0.009	0.014
247	20.58	0.10	0.023	(0.087)	0.009	0.014
248	20.67	0.10	0.023	(0.087)	0.009	0.014
249	20.75	0.10	0.023	(0.086)	0.009	0.014
250	20.83	0.07	0.015	(0.086)	0.006	0.010
251	20.92	0.07	0.015	(0.086)	0.006	0.010
252	21.00	0.07	0.015	(0.085)	0.006	0.010
253	21.08	0.10	0.023	(0.085)	0.009	0.014
254	21.17	0.10	0.023	(0.085)	0.009	0.014
255	21.25	0.10	0.023	(0.084)	0.009	0.014
256	21.33	0.07	0.015	(0.084)	0.006	0.010
257	21.42	0.07	0.015	(0.084)	0.006	0.010
258	21.50	0.07	0.015	(0.083)	0.006	0.010
259	21.58	0.10	0.023	(0.083)	0.009	0.014
260	21.67	0.10	0.023	(0.083)	0.009	0.014
261	21.75	0.10	0.023	(0.083)	0.009	0.014
262	21.83	0.07	0.015	(0.082)	0.006	0.010
263	21.92	0.07	0.015	(0.082)	0.006	0.010
264	22.00	0.07	0.015	(0.082)	0.006	0.010
265	22.08	0.10	0.023	(0.081)	0.009	0.014
266	22.17	0.10	0.023	(0.081)	0.009	0.014
267	22.25	0.10	0.023	(0.081)	0.009	0.014
268	22.33	0.07	0.015	(0.081)	0.006	0.010
269	22.42	0.07	0.015	(0.080)	0.006	0.010
270	22.50	0.07	0.015	(0.080)	0.006	0.010
271	22.58	0.07	0.015	(0.080)	0.006	0.010
272	22.67	0.07	0.015	(0.080)	0.006	0.010
273	22.75	0.07	0.015	(0.079)	0.006	0.010
274	22.83	0.07	0.015	(0.079)	0.006	0.010
275	22.92	0.07	0.015	(0.079)	0.006	0.010
276	23.00	0.07	0.015	(0.079)	0.006	0.010
277	23.08	0.07	0.015	(0.079)	0.006	0.010
278	23.17	0.07	0.015	(0.079)	0.006	0.010
279	23.25	0.07	0.015	(0.078)	0.006	0.010
280	23.33	0.07	0.015	(0.078)	0.006	0.010
281	23.42	0.07	0.015	(0.078)	0.006	0.010
282	23.50	0.07	0.015	(0.078)	0.006	0.010
283	23.58	0.07	0.015	(0.078)	0.006	0.010
284	23.67	0.07	0.015	(0.078)	0.006	0.010
285	23.75	0.07	0.015	(0.078)	0.006	0.010
286	23.83	0.07	0.015	(0.077)	0.006	0.010
287	23.92	0.07	0.015	(0.077)	0.006	0.010
288	24.00	0.07	0.015	(0.077)	0.006	0.010

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.4

Flood volume = Effective rainfall 1.20(In)
times area 4.0(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 0.73(In)
Total soil loss = 0.244(Ac.Ft)
Total rainfall = 1.93(In)
Flood volume = 17374.5 Cubic Feet
Total soil loss = 10648.9 Cubic Feet

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Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Peak flow rate of this hydrograph = 0.656(CFS)

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24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

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 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 2.5 5.0 7.5
 10.0

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5
0+ 5	0.0001		0.02	Q	|	|	|
0+10	0.0004		0.04	Q	|	|	|
0+15	0.0007		0.04	Q	|	|	|
0+20	0.0010		0.05	Q	|	|	|
0+25	0.0014		0.06	Q	|	|	|
0+30	0.0018		0.06	Q	|	|	|
0+35	0.0022		0.06	Q	|	|	|
0+40	0.0026		0.06	Q	|	|	|
0+45	0.0030		0.06	Q	|	|	|
0+50	0.0035		0.07	Q	|	|	|
0+55	0.0040		0.08	Q	|	|	|
1+ 0	0.0045		0.08	Q	|	|	|
1+ 5	0.0050		0.07	Q	|	|	|
1+10	0.0054		0.06	Q	|	|	|
1+15	0.0058		0.06	Q	|	|	|
1+20	0.0062		0.06	Q	|	|	|
1+25	0.0066		0.06	Q	|	|	|
1+30	0.0070		0.06	Q	|	|	|
1+35	0.0074		0.06	Q	|	|	|
1+40	0.0078		0.06	Q	|	|	|
1+45	0.0082		0.06	Q	|	|	|
1+50	0.0087		0.07	Q	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

1+55	0.0092	0.08	Q	|	|	|
2+ 0	0.0097	0.08	Q	|	|	|
2+ 5	0.0102	0.08	QV	|	|	|
2+10	0.0108	0.08	QV	|	|	|
2+15	0.0113	0.08	QV	|	|	|
2+20	0.0118	0.08	QV	|	|	|
2+25	0.0124	0.08	QV	|	|	|
2+30	0.0129	0.08	QV	|	|	|
2+35	0.0135	0.09	QV	|	|	|
2+40	0.0142	0.10	QV	|	|	|
2+45	0.0148	0.10	QV	|	|	|
2+50	0.0155	0.10	QV	|	|	|
2+55	0.0162	0.10	QV	|	|	|
3+ 0	0.0168	0.10	QV	|	|	|
3+ 5	0.0175	0.10	QV	|	|	|
3+10	0.0182	0.10	QV	|	|	|
3+15	0.0188	0.10	QV	|	|	|
3+20	0.0195	0.10	QV	|	|	|
3+25	0.0202	0.10	Q V	|	|	|
3+30	0.0208	0.10	Q V	|	|	|
3+35	0.0215	0.10	Q V	|	|	|
3+40	0.0221	0.10	Q V	|	|	|
3+45	0.0228	0.10	Q V	|	|	|
3+50	0.0236	0.11	Q V	|	|	|
3+55	0.0243	0.12	Q V	|	|	|
4+ 0	0.0251	0.12	Q V	|	|	|
4+ 5	0.0259	0.12	Q V	|	|	|
4+10	0.0267	0.12	Q V	|	|	|
4+15	0.0275	0.12	Q V	|	|	|
4+20	0.0284	0.13	Q V	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

4+25	0.0293	0.13	Q	V	|	|	|
4+30	0.0303	0.14	Q	V	|	|	|
4+35	0.0312	0.14	Q	V	|	|	|
4+40	0.0321	0.14	Q	V	|	|	|
4+45	0.0331	0.14	Q	V	|	|	|
4+50	0.0341	0.15	Q	V	|	|	|
4+55	0.0351	0.15	Q	V	|	|	|
5+ 0	0.0362	0.15	Q	V	|	|	|
5+ 5	0.0371	0.13	Q	V	|	|	|
5+10	0.0379	0.12	Q	V	|	|	|
5+15	0.0387	0.12	Q	V	|	|	|
5+20	0.0396	0.13	Q	V	|	|	|
5+25	0.0405	0.13	Q	V	|	|	|
5+30	0.0414	0.14	Q	V	|	|	|
5+35	0.0424	0.15	Q	V	|	|	|
5+40	0.0435	0.15	Q	V	|	|	|
5+45	0.0446	0.15	Q	V	|	|	|
5+50	0.0456	0.15	Q	V	|	|	|
5+55	0.0467	0.15	Q	V	|	|	|
6+ 0	0.0477	0.15	Q	V	|	|	|
6+ 5	0.0489	0.16	Q	V	|	|	|
6+10	0.0501	0.17	Q	V	|	|	|
6+15	0.0513	0.17	Q	V	|	|	|
6+20	0.0525	0.17	Q	V	|	|	|
6+25	0.0537	0.17	Q	V	|	|	|
6+30	0.0549	0.17	Q	V	|	|	|
6+35	0.0561	0.18	Q	V	|	|	|
6+40	0.0575	0.19	Q	V	|	|	|
6+45	0.0588	0.19	Q	V	|	|	|
6+50	0.0601	0.19	Q	V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

6+55	0.0614	0.19	Q	V	|	|	|
7+ 0	0.0628	0.19	Q	V	|	|	|
7+ 5	0.0641	0.19	Q	V	|	|	|
7+10	0.0654	0.19	Q	V	|	|	|
7+15	0.0668	0.19	Q	V	|	|	|
7+20	0.0682	0.20	Q	V	|	|	|
7+25	0.0696	0.21	Q	V	|	|	|
7+30	0.0711	0.21	Q	V	|	|	|
7+35	0.0726	0.22	Q	V	|	|	|
7+40	0.0742	0.23	Q	V	|	|	|
7+45	0.0758	0.23	Q	V	|	|	|
7+50	0.0775	0.24	Q	V	|	|	|
7+55	0.0792	0.25	|Q	V	|	|	|
8+ 0	0.0809	0.25	|Q	V	|	|	|
8+ 5	0.0828	0.27	|Q	V	|	|	|
8+10	0.0848	0.29	|Q	V	|	|	|
8+15	0.0868	0.29	|Q	V	|	|	|
8+20	0.0888	0.29	|Q	V	|	|	|
8+25	0.0908	0.29	|Q	V	|	|	|
8+30	0.0928	0.29	|Q	V	|	|	|
8+35	0.0948	0.30	|Q	V	|	|	|
8+40	0.0970	0.31	|Q	V	|	|	|
8+45	0.0991	0.31	|Q	V	|	|	|
8+50	0.1013	0.32	|Q	V	|	|	|
8+55	0.1035	0.33	|Q	V	|	|	|
9+ 0	0.1058	0.33	|Q	V	|	|	|
9+ 5	0.1082	0.35	|Q	V	|	|	|
9+10	0.1107	0.37	|Q	|V	|	|	|
9+15	0.1133	0.37	|Q	|V	|	|	|
9+20	0.1159	0.38	|Q	|V	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

9+25	0.1185	0.39	|Q	|V	|	|
9+30	0.1212	0.39	|Q	|V	|	|
9+35	0.1239	0.40	|Q	|V	|	|
9+40	0.1267	0.40	|Q	|V	|	|
9+45	0.1295	0.41	|Q	|V	|	|
9+50	0.1323	0.42	|Q	|V	|	|
9+55	0.1353	0.42	|Q	|V	|	|
10+ 0	0.1382	0.42	|Q	|V	|	|
10+ 5	0.1406	0.35	|Q	|V	|	|
10+10	0.1426	0.29	|Q	|V	|	|
10+15	0.1446	0.29	|Q	|V	|	|
10+20	0.1466	0.29	|Q	|V	|	|
10+25	0.1486	0.29	|Q	|V	|	|
10+30	0.1506	0.29	|Q	|V	|	|
10+35	0.1530	0.34	|Q	|V	|	|
10+40	0.1556	0.38	|Q	|V	|	|
10+45	0.1583	0.39	|Q	|V	|	|
10+50	0.1609	0.39	|Q	|V	|	|
10+55	0.1636	0.39	|Q	|V	|	|
11+ 0	0.1662	0.39	|Q	|V	|	|
11+ 5	0.1688	0.38	|Q	|V	|	|
11+10	0.1714	0.37	|Q	|V	|	|
11+15	0.1739	0.37	|Q	|V	|	|
11+20	0.1764	0.37	|Q	|V	|	|
11+25	0.1789	0.37	|Q	|V	|	|
11+30	0.1815	0.37	|Q	|V	|	|
11+35	0.1838	0.35	|Q	|V	|	|
11+40	0.1861	0.33	|Q	|V	|	|
11+45	0.1884	0.33	|Q	|V	|	|
11+50	0.1907	0.34	|Q	|V	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

11+55	0.1931	0.35	|Q	|	v|	|
12+ 0	0.1955	0.35	|Q	|	v|	|
12+ 5	0.1984	0.42	|Q	|	v|	|
12+10	0.2017	0.48	|Q	|	v	|
12+15	0.2050	0.48	|Q	|	v	|
12+20	0.2084	0.49	|Q	|	v	|
12+25	0.2119	0.50	|Q	|	|v	|
12+30	0.2153	0.50	|Q	|	|v	|
12+35	0.2189	0.52	|Q	|	|v	|
12+40	0.2226	0.54	|Q	|	|v	|
12+45	0.2264	0.54	|Q	|	|v	|
12+50	0.2301	0.55	|Q	|	|v	|
12+55	0.2340	0.56	|Q	|	|v	|
13+ 0	0.2379	0.56	|Q	|	|v	|
13+ 5	0.2421	0.61	|Q	|	|v	|
13+10	0.2466	0.65	|Q	|	|v	|
13+15	0.2511	0.66	|Q	|	|v	|
13+20	0.2556	0.66	|Q	|	|v	|
13+25	0.2601	0.66	|Q	|	|v	|
13+30	0.2647	0.66	|Q	|	|v	|
13+35	0.2684	0.54	|Q	|	|v	|
13+40	0.2715	0.45	|Q	|	|v	|
13+45	0.2745	0.44	|Q	|	|v	|
13+50	0.2776	0.44	|Q	|	|v	|
13+55	0.2807	0.44	|Q	|	|v	|
14+ 0	0.2837	0.44	|Q	|	|v	|
14+ 5	0.2871	0.49	|Q	|	|v	|
14+10	0.2906	0.52	|Q	|	|v|	|
14+15	0.2942	0.52	|Q	|	|v|	|
14+20	0.2977	0.51	|Q	|	|v|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

14+25	0.3012	0.50	| Q	|	|	V
14+30	0.3047	0.50	| Q	|	|	V
14+35	0.3081	0.50	| Q	|	|	V
14+40	0.3116	0.50	| Q	|	|	|V
14+45	0.3150	0.50	| Q	|	|	|V
14+50	0.3184	0.49	|Q	|	|	|V
14+55	0.3217	0.48	|Q	|	|	| V
15+ 0	0.3251	0.48	|Q	|	|	| V
15+ 5	0.3283	0.47	|Q	|	|	| V
15+10	0.3315	0.46	|Q	|	|	| V
15+15	0.3347	0.46	|Q	|	|	| V
15+20	0.3378	0.45	|Q	|	|	| V
15+25	0.3409	0.44	|Q	|	|	| V
15+30	0.3439	0.44	|Q	|	|	| V
15+35	0.3467	0.40	|Q	|	|	| V
15+40	0.3492	0.37	|Q	|	|	| V
15+45	0.3518	0.37	|Q	|	|	| V
15+50	0.3543	0.37	|Q	|	|	| V
15+55	0.3568	0.37	|Q	|	|	| V
16+ 0	0.3594	0.37	|Q	|	|	| V
16+ 5	0.3608	0.21	Q	|	|	| V
16+10	0.3614	0.09	Q	|	|	| V
16+15	0.3619	0.08	Q	|	|	| V
16+20	0.3624	0.08	Q	|	|	| V
16+25	0.3630	0.08	Q	|	|	| V
16+30	0.3635	0.08	Q	|	|	| V
16+35	0.3640	0.07	Q	|	|	| V
16+40	0.3644	0.06	Q	|	|	| V
16+45	0.3648	0.06	Q	|	|	| V
16+50	0.3652	0.06	Q	|	|	| V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

16+55	0.3656	0.06	Q	|	|	|	V
17+ 0	0.3660	0.06	Q	|	|	|	V
17+ 5	0.3665	0.08	Q	|	|	|	V
17+10	0.3672	0.10	Q	|	|	|	V
17+15	0.3678	0.10	Q	|	|	|	V
17+20	0.3685	0.10	Q	|	|	|	V
17+25	0.3692	0.10	Q	|	|	|	V
17+30	0.3698	0.10	Q	|	|	|	V
17+35	0.3705	0.10	Q	|	|	|	V
17+40	0.3712	0.10	Q	|	|	|	V
17+45	0.3718	0.10	Q	|	|	|	V
17+50	0.3724	0.09	Q	|	|	|	V
17+55	0.3729	0.08	Q	|	|	|	V
18+ 0	0.3735	0.08	Q	|	|	|	V
18+ 5	0.3740	0.08	Q	|	|	|	V
18+10	0.3745	0.08	Q	|	|	|	V
18+15	0.3751	0.08	Q	|	|	|	V
18+20	0.3756	0.08	Q	|	|	|	V
18+25	0.3761	0.08	Q	|	|	|	V
18+30	0.3767	0.08	Q	|	|	|	V
18+35	0.3771	0.07	Q	|	|	|	V
18+40	0.3775	0.06	Q	|	|	|	V
18+45	0.3779	0.06	Q	|	|	|	V
18+50	0.3783	0.05	Q	|	|	|	V
18+55	0.3785	0.04	Q	|	|	|	V
19+ 0	0.3788	0.04	Q	|	|	|	V
19+ 5	0.3791	0.05	Q	|	|	|	V
19+10	0.3795	0.06	Q	|	|	|	V
19+15	0.3799	0.06	Q	|	|	|	V
19+20	0.3804	0.07	Q	|	|	|	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

	19+25	0.3809	0.08	Q	|	|	|	V
	19+30	0.3815	0.08	Q	|	|	|	V
	19+35	0.3819	0.07	Q	|	|	|	V
	19+40	0.3823	0.06	Q	|	|	|	V
	19+45	0.3827	0.06	Q	|	|	|	V
	19+50	0.3830	0.05	Q	|	|	|	V
	19+55	0.3833	0.04	Q	|	|	|	V
	20+ 0	0.3836	0.04	Q	|	|	|	V
	20+ 5	0.3839	0.05	Q	|	|	|	V
	20+10	0.3843	0.06	Q	|	|	|	V
	20+15	0.3847	0.06	Q	|	|	|	V
	20+20	0.3851	0.06	Q	|	|	|	V
	20+25	0.3855	0.06	Q	|	|	|	V
	20+30	0.3859	0.06	Q	|	|	|	V
	20+35	0.3863	0.06	Q	|	|	|	V
	20+40	0.3867	0.06	Q	|	|	|	V
	20+45	0.3871	0.06	Q	|	|	|	V
	20+50	0.3874	0.05	Q	|	|	|	V
	20+55	0.3877	0.04	Q	|	|	|	V
	21+ 0	0.3880	0.04	Q	|	|	|	V
	21+ 5	0.3883	0.05	Q	|	|	|	V
	21+10	0.3887	0.06	Q	|	|	|	V
	21+15	0.3891	0.06	Q	|	|	|	V
V|	21+20	0.3894	0.05	Q	|	|	|	V
V|	21+25	0.3897	0.04	Q	|	|	|	V
V|	21+30	0.3900	0.04	Q	|	|	|	V
V|	21+35	0.3903	0.05	Q	|	|	|	V
V|	21+40	0.3907	0.06	Q	|	|	|	V
V|	21+45	0.3911	0.06	Q	|	|	|	V
V|	21+50	0.3914	0.05	Q	|	|	|	V

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

V|	21+55	0.3917	0.04	Q	|	|	|
V|	22+ 0	0.3920	0.04	Q	|	|	|
V|	22+ 5	0.3923	0.05	Q	|	|	|
V|	22+10	0.3927	0.06	Q	|	|	|
V|	22+15	0.3931	0.06	Q	|	|	|
V|	22+20	0.3934	0.05	Q	|	|	|
V|	22+25	0.3937	0.04	Q	|	|	|
V|	22+30	0.3939	0.04	Q	|	|	|
V|	22+35	0.3942	0.04	Q	|	|	|
V|	22+40	0.3945	0.04	Q	|	|	|
V|	22+45	0.3947	0.04	Q	|	|	|
V|	22+50	0.3950	0.04	Q	|	|	|
V|	22+55	0.3953	0.04	Q	|	|	|
V|	23+ 0	0.3955	0.04	Q	|	|	|
V|	23+ 5	0.3958	0.04	Q	|	|	|
V|	23+10	0.3961	0.04	Q	|	|	|
V|	23+15	0.3963	0.04	Q	|	|	|
V|	23+20	0.3966	0.04	Q	|	|	|
V|	23+25	0.3969	0.04	Q	|	|	|
V|	23+30	0.3971	0.04	Q	|	|	|
V|	23+35	0.3974	0.04	Q	|	|	|
V|	23+40	0.3977	0.04	Q	|	|	|
V|	23+45	0.3979	0.04	Q	|	|	|
V|	23+50	0.3982	0.04	Q	|	|	|
V|	23+55	0.3985	0.04	Q	|	|	|
V|	24+ 0	0.3987	0.04	Q	|	|	|
V|	24+ 5	0.3989	0.02	Q	|	|	|
V|	24+10	0.3989	0.00	Q	|	|	|
V							

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/09/21

Gateway Heights
Basin Routing
2 yr 24hr
Basin B

--
Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION

From study/file name: moval33post242.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 291
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 1.789 (CFS)
Total volume = 1.087 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
Process from Point/Station 102.000 to Point/Station
103.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

--
Total number of inflow hydrograph intervals = 291
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

--

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.060	0.700	0.058	0.062
2.000	0.120	0.700	0.118	0.122
3.000	0.320	0.700	0.318	0.322
4.000	0.560	0.700	0.558	0.562
5.000	0.820	24.000	0.737	0.903
6.000	1.100	24.000	1.017	1.183

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)					
			.0	0	0.4	0.89	1.34	1.79
0.083	0.05	0.00	0.000	O	|	|	|	|
0.167	0.10	0.01	0.001	OI	|	|	|	|
0.250	0.10	0.01	0.001	OI	|	|	|	|
0.333	0.13	0.02	0.002	O I	|	|	|	|
0.417	0.15	0.03	0.003	O I	|	|	|	|
0.500	0.16	0.04	0.004	O I	|	|	|	|
0.583	0.16	0.05	0.004	O I	|	|	|	|
0.667	0.16	0.06	0.005	|OI	|	|	|	|
0.750	0.16	0.07	0.006	|OI	|	|	|	|
0.833	0.18	0.07	0.006	|O I	|	|	|	|
0.917	0.21	0.08	0.007	|O I	|	|	|	|
1.000	0.21	0.09	0.008	|O I	|	|	|	|
1.083	0.19	0.10	0.009	|O I	|	|	|	|
1.167	0.16	0.11	0.009	|OI	|	|	|	|

0.15									
1.250	0.16	0.11	0.010	OI	|	|	|	|	|
0.16									
1.333	0.16	0.11	0.010	O	|	|	|	|	|
0.16									
1.417	0.16	0.12	0.010	O	|	|	|	|	|
0.17									
1.500	0.16	0.12	0.010	O	|	|	|	|	|
0.17									
1.583	0.16	0.12	0.011	O	|	|	|	|	|
0.18									
1.667	0.16	0.13	0.011	O	|	|	|	|	|
0.18									
1.750	0.16	0.13	0.011	O	|	|	|	|	|
0.18									
1.833	0.18	0.13	0.011	OI	|	|	|	|	|
0.19									
1.917	0.21	0.14	0.012	OI	|	|	|	|	|
0.20									
2.000	0.21	0.14	0.012	OI	|	|	|	|	|
0.20									
2.083	0.21	0.15	0.013	OI	|	|	|	|	|
0.21									
2.167	0.21	0.15	0.013	OI	|	|	|	|	|
0.22									
2.250	0.21	0.16	0.013	OI	|	|	|	|	|
0.22									
2.333	0.21	0.16	0.014	OI	|	|	|	|	|
0.23									
2.417	0.21	0.16	0.014	OI	|	|	|	|	|
0.24									
2.500	0.21	0.17	0.014	O	|	|	|	|	|
0.24									
2.583	0.23	0.17	0.015	OI	|	|	|	|	|
0.25									
2.667	0.26	0.18	0.015	OI	|	|	|	|	|
0.25									
2.750	0.26	0.18	0.016	OI	|	|	|	|	|
0.26									
2.833	0.26	0.19	0.016	OI	|	|	|	|	|
0.27									
2.917	0.26	0.20	0.017	OI	|	|	|	|	|
0.28									
3.000	0.26	0.20	0.017	OI	|	|	|	|	|
0.29									
3.083	0.26	0.21	0.018	OI	|	|	|	|	|
0.29									
3.167	0.26	0.21	0.018	OI	|	|	|	|	|
0.30									
3.250	0.26	0.21	0.018	OI	|	|	|	|	|
0.31									
3.333	0.26	0.22	0.019	OI	|	|	|	|	|
0.31									
3.417	0.26	0.22	0.019	OI	|	|	|	|	|
0.32									
3.500	0.26	0.23	0.019	O	|	|	|	|	|
0.32									
3.583	0.26	0.23	0.020	O	|	|	|	|	|
0.33									
3.667	0.26	0.23	0.020	O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.33									
3.750	0.26	0.23	0.020	O					
0.33									
3.833	0.29	0.24	0.020	OI					
0.34									
3.917	0.31	0.24	0.021	OI					
0.34									
4.000	0.32	0.25	0.021	OI					
0.35									
4.083	0.32	0.25	0.022	OI					
0.36									
4.167	0.32	0.26	0.022	OI					
0.37									
4.250	0.32	0.26	0.022	OI					
0.37									
4.333	0.34	0.27	0.023	O I					
0.38									
4.417	0.36	0.27	0.023	O I					
0.39									
4.500	0.37	0.28	0.024	OI					
0.40									
4.583	0.37	0.29	0.025	OI					
0.41									
4.667	0.37	0.29	0.025	OI					
0.42									
4.750	0.37	0.30	0.026	OI					
0.43									
4.833	0.39	0.31	0.026	O I					
0.44									
4.917	0.42	0.31	0.027	O I					
0.45									
5.000	0.42	0.32	0.028	O I					
0.46									
5.083	0.37	0.33	0.028	OI					
0.47									
5.167	0.32	0.33	0.028	O					
0.47									
5.250	0.32	0.33	0.028	O					
0.47									
5.333	0.34	0.33	0.028	OI					
0.47									
5.417	0.36	0.33	0.028	OI					
0.47									
5.500	0.37	0.33	0.029	OI					
0.48									
5.583	0.39	0.34	0.029	OI					
0.48									
5.667	0.42	0.34	0.029	OI					
0.49									
5.750	0.42	0.35	0.030	OI					
0.50									
5.833	0.42	0.35	0.030	OI					
0.50									
5.917	0.42	0.36	0.031	OI					
0.51									
6.000	0.42	0.36	0.031	OI					
0.52									
6.083	0.44	0.37	0.032	OI					
0.53									
6.167	0.47	0.38	0.032	O I					

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

0.54								
6.250	0.47	0.38	0.033	|	O I	|	|	|
0.55								
6.333	0.47	0.39	0.033	|	O I	|	|	|
0.56								
6.417	0.47	0.40	0.034	|	OI	|	|	|
0.57								
6.500	0.47	0.40	0.034	|	OI	|	|	|
0.57								
6.583	0.50	0.41	0.035	|	OI	|	|	|
0.58								
6.667	0.52	0.42	0.036	|	O|I	|	|	|
0.60								
6.750	0.53	0.42	0.036	|	O|I	|	|	|
0.61								
6.833	0.53	0.43	0.037	|	O|I	|	|	|
0.62								
6.917	0.53	0.44	0.038	|	O|I	|	|	|
0.63								
7.000	0.53	0.45	0.038	|	O|I	|	|	|
0.64								
7.083	0.53	0.45	0.039	|	OI	|	|	|
0.65								
7.167	0.53	0.46	0.039	|	OI	|	|	|
0.65								
7.250	0.53	0.46	0.040	|	OI	|	|	|
0.66								
7.333	0.55	0.47	0.040	|	OI	|	|	|
0.67								
7.417	0.58	0.48	0.041	|	O I	|	|	|
0.68								
7.500	0.58	0.48	0.042	|	O I	|	|	|
0.69								
7.583	0.60	0.49	0.042	|	O I	|	|	|
0.70								
7.667	0.63	0.50	0.043	|	O I	|	|	|
0.72								
7.750	0.63	0.51	0.044	|	|O I	|	|	|
0.73								
7.833	0.65	0.52	0.045	|	|O I	|	|	|
0.75								
7.917	0.68	0.53	0.046	|	|O I	|	|	|
0.76								
8.000	0.68	0.54	0.047	|	|O I	|	|	|
0.78								
8.083	0.73	0.56	0.048	|	|O I	|	|	|
0.80								
8.167	0.78	0.57	0.049	|	| O I	|	|	|
0.82								
8.250	0.79	0.59	0.050	|	| O I	|	|	|
0.84								
8.333	0.79	0.60	0.052	|	| O I	|	|	|
0.86								
8.417	0.79	0.62	0.053	|	| O I	|	|	|
0.88								
8.500	0.79	0.63	0.054	|	| O I	|	|	|
0.90								
8.583	0.81	0.64	0.055	|	| O I	|	|	|
0.92								
8.667	0.84	0.66	0.056	|	| O I	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

1.90										
11.250	1.00	0.70	0.116	|	|	O	|I	|	|	|
1.94										
11.333	1.00	0.70	0.118	|	|	O	|I	|	|	|
1.97										
11.417	1.00	0.70	0.120	|	|	O	|I	|	|	|
2.00										
11.500	1.00	0.70	0.123	|	|	O	|I	|	|	|
2.01										
11.583	0.95	0.70	0.124	|	|	O	|I	|	|	|
2.02										
11.667	0.90	0.70	0.126	|	|	O	I	|	|	|
2.03										
11.750	0.90	0.70	0.127	|	|	O	I	|	|	|
2.04										
11.833	0.92	0.70	0.129	|	|	O	I	|	|	|
2.04										
11.917	0.94	0.70	0.130	|	|	O	I	|	|	|
2.05										
12.000	0.95	0.70	0.132	|	|	O	I	|	|	|
2.06										
12.083	1.11	0.70	0.134	|	|	O	|	I	|	|
2.07										
12.167	1.29	0.70	0.138	|	|	O	|	I	|	|
2.09										
12.250	1.31	0.70	0.142	|	|	O	|	I	|	|
2.11										
12.333	1.34	0.70	0.146	|	|	O	|	I	|	|
2.13										
12.417	1.36	0.70	0.151	|	|	O	|	I	|	|
2.15										
12.500	1.37	0.70	0.155	|	|	O	|	I	|	|
2.18										
12.583	1.41	0.70	0.160	|	|	O	|	I	|	|
2.20										
12.667	1.47	0.70	0.165	|	|	O	|	I	|	|
2.23										
12.750	1.47	0.70	0.170	|	|	O	|	I	|	|
2.25										
12.833	1.50	0.70	0.176	|	|	O	|	I	|	|
2.28										
12.917	1.52	0.70	0.181	|	|	O	|	I	|	|
2.31										
13.000	1.53	0.70	0.187	|	|	O	|	I	|	|
2.34										
13.083	1.64	0.70	0.193	|	|	O	|	I	|	|
2.37										
13.167	1.77	0.70	0.200	|	|	O	|	I	|	|
2.40										
13.250	1.79	0.70	0.208	|	|	O	|	I	|	|
2.44										
13.333	1.79	0.70	0.215	|	|	O	|	I	|	|
2.48										
13.417	1.79	0.70	0.223	|	|	O	|	I	|	|
2.51										
13.500	1.79	0.70	0.230	|	|	O	|	I	|	|
2.55										
13.583	1.53	0.70	0.237	|	|	O	|	I	|	|
2.58										
13.667	1.25	0.70	0.241	|	|	O	|	I	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.61										
13.750	1.21	0.70	0.245	|	|	O	|	I	|	|
2.63										
13.833	1.21	0.70	0.249	|	|	O	|	I	|	|
2.64										
13.917	1.21	0.70	0.252	|	|	O	|	I	|	|
2.66										
14.000	1.21	0.70	0.256	|	|	O	|	I	|	|
2.68										
14.083	1.30	0.70	0.259	|	|	O	|	I	|	|
2.70										
14.167	1.41	0.70	0.264	|	|	O	|	|	I	|
2.72										
14.250	1.42	0.70	0.269	|	|	O	|	|	I	|
2.74										
14.333	1.40	0.70	0.274	|	|	O	|	I	|	|
2.77										
14.417	1.37	0.70	0.278	|	|	O	|	I	|	|
2.79										
14.500	1.37	0.70	0.283	|	|	O	|	I	|	|
2.82										
14.583	1.37	0.70	0.288	|	|	O	|	I	|	|
2.84										
14.667	1.37	0.70	0.292	|	|	O	|	I	|	|
2.86										
14.750	1.37	0.70	0.297	|	|	O	|	I	|	|
2.88										
14.833	1.34	0.70	0.301	|	|	O	|	I	|	|
2.91										
14.917	1.32	0.70	0.306	|	|	O	|	I	|	|
2.93										
15.000	1.32	0.70	0.310	|	|	O	|	I	|	|
2.95										
15.083	1.29	0.70	0.314	|	|	O	|	I	|	|
2.97										
15.167	1.27	0.70	0.318	|	|	O	|	I	|	|
2.99										
15.250	1.26	0.70	0.322	|	|	O	|	I	|	|
3.01										
15.333	1.24	0.70	0.326	|	|	O	|	I	|	|
3.02										
15.417	1.21	0.70	0.329	|	|	O	|	I	|	|
3.04										
15.500	1.21	0.70	0.333	|	|	O	|	I	|	|
3.05										
15.583	1.12	0.70	0.336	|	|	O	|	I	|	|
3.07										
15.667	1.01	0.70	0.339	|	|	O	|	I	|	|
3.08										
15.750	1.00	0.70	0.341	|	|	O	|	I	|	|
3.09										
15.833	1.00	0.70	0.343	|	|	O	|	I	|	|
3.10										
15.917	1.00	0.70	0.345	|	|	O	|	I	|	|
3.10										
16.000	1.00	0.70	0.347	|	|	O	|	I	|	|
3.11										
16.083	0.65	0.70	0.348	|	|	IO	|	|	|	|
3.12										
16.167	0.26	0.70	0.346	|	I	|	O	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

3.11									
16.250	0.22	0.70	0.343	I		O			
3.10									
16.333	0.21	0.70	0.340	I		O			
3.08									
16.417	0.21	0.70	0.336	I		O			
3.07									
16.500	0.21	0.70	0.333	I		O			
3.05									
16.583	0.19	0.70	0.329	I		O			
3.04									
16.667	0.16	0.70	0.326	I		O			
3.02									
16.750	0.16	0.70	0.322	I		O			
3.01									
16.833	0.16	0.70	0.318	I		O			
2.99									
16.917	0.16	0.70	0.315	I		O			
2.97									
17.000	0.16	0.70	0.311	I		O			
2.95									
17.083	0.20	0.70	0.307	I		O			
2.94									
17.167	0.26	0.70	0.304	I		O			
2.92									
17.250	0.26	0.70	0.301	I		O			
2.90									
17.333	0.26	0.70	0.298	I		O			
2.89									
17.417	0.26	0.70	0.295	I		O			
2.87									
17.500	0.26	0.70	0.292	I		O			
2.86									
17.583	0.26	0.70	0.289	I		O			
2.84									
17.667	0.26	0.70	0.286	I		O			
2.83									
17.750	0.26	0.70	0.283	I		O			
2.81									
17.833	0.24	0.70	0.280	I		O			
2.80									
17.917	0.21	0.70	0.277	I		O			
2.78									
18.000	0.21	0.70	0.273	I		O			
2.77									
18.083	0.21	0.70	0.270	I		O			
2.75									
18.167	0.21	0.70	0.266	I		O			
2.73									
18.250	0.21	0.70	0.263	I		O			
2.72									
18.333	0.21	0.70	0.260	I		O			
2.70									
18.417	0.21	0.70	0.256	I		O			
2.68									
18.500	0.21	0.70	0.253	I		O			
2.66									
18.583	0.19	0.70	0.250	I		O			
2.65									
18.667	0.16	0.70	0.246	I		O			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.63									
18.750	0.16	0.70	0.242	| I	|	o	|	|	|
2.61									
18.833	0.13	0.70	0.238	| I	|	o	|	|	|
2.59									
18.917	0.11	0.70	0.234	| I	|	o	|	|	|
2.57									
19.000	0.11	0.70	0.230	| I	|	o	|	|	|
2.55									
19.083	0.13	0.70	0.226	| I	|	o	|	|	|
2.53									
19.167	0.15	0.70	0.222	| I	|	o	|	|	|
2.51									
19.250	0.16	0.70	0.219	| I	|	o	|	|	|
2.49									
19.333	0.18	0.70	0.215	| I	|	o	|	|	|
2.48									
19.417	0.21	0.70	0.212	| I	|	o	|	|	|
2.46									
19.500	0.21	0.70	0.208	| I	|	o	|	|	|
2.44									
19.583	0.19	0.70	0.205	| I	|	o	|	|	|
2.42									
19.667	0.16	0.70	0.201	| I	|	o	|	|	|
2.41									
19.750	0.16	0.70	0.197	| I	|	o	|	|	|
2.39									
19.833	0.13	0.70	0.194	| I	|	o	|	|	|
2.37									
19.917	0.11	0.70	0.190	| I	|	o	|	|	|
2.35									
20.000	0.11	0.70	0.186	| I	|	o	|	|	|
2.33									
20.083	0.13	0.70	0.181	| I	|	o	|	|	|
2.31									
20.167	0.15	0.70	0.178	| I	|	o	|	|	|
2.29									
20.250	0.16	0.70	0.174	| I	|	o	|	|	|
2.27									
20.333	0.16	0.70	0.170	| I	|	o	|	|	|
2.25									
20.417	0.16	0.70	0.166	| I	|	o	|	|	|
2.23									
20.500	0.16	0.70	0.163	| I	|	o	|	|	|
2.21									
20.583	0.16	0.70	0.159	| I	|	o	|	|	|
2.19									
20.667	0.16	0.70	0.155	| I	|	o	|	|	|
2.18									
20.750	0.16	0.70	0.151	| I	|	o	|	|	|
2.16									
20.833	0.13	0.70	0.148	| I	|	o	|	|	|
2.14									
20.917	0.11	0.70	0.144	| I	|	o	|	|	|
2.12									
21.000	0.11	0.70	0.140	| I	|	o	|	|	|
2.10									
21.083	0.13	0.70	0.136	| I	|	o	|	|	|
2.08									
21.167	0.15	0.70	0.132	| I	|	o	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

2.06									
21.250	0.16	0.70	0.128	| I	|	o	|	|	|
2.04									
21.333	0.13	0.70	0.124	| I	|	o	|	|	|
2.02									
21.417	0.11	0.70	0.120	| I	|	o	|	|	|
2.00									
21.500	0.11	0.70	0.116	| I	|	o	|	|	|
1.94									
21.583	0.13	0.70	0.112	| I	|	o	|	|	|
1.87									
21.667	0.15	0.70	0.108	| I	|	o	|	|	|
1.80									
21.750	0.16	0.70	0.105	| I	|	o	|	|	|
1.74									
21.833	0.13	0.70	0.101	| I	|	o	|	|	|
1.68									
21.917	0.11	0.70	0.097	| I	|	o	|	|	|
1.61									
22.000	0.11	0.70	0.093	| I	|	o	|	|	|
1.54									
22.083	0.13	0.70	0.089	| I	|	o	|	|	|
1.48									
22.167	0.15	0.70	0.085	| I	|	o	|	|	|
1.41									
22.250	0.16	0.70	0.081	| I	|	o	|	|	|
1.35									
22.333	0.13	0.70	0.077	| I	|	o	|	|	|
1.29									
22.417	0.11	0.70	0.073	| I	|	o	|	|	|
1.22									
22.500	0.11	0.70	0.069	| I	|	o	|	|	|
1.15									
22.583	0.11	0.70	0.065	| I	|	o	|	|	|
1.08									
22.667	0.11	0.70	0.061	| I	|	o	|	|	|
1.02									
22.750	0.11	0.66	0.057	| I	|	o	|	|	|
0.95									
22.833	0.11	0.62	0.053	| I	|	o	|	|	|
0.89									
22.917	0.11	0.58	0.050	| I	|	o	|	|	|
0.83									
23.000	0.11	0.54	0.047	| I	|	o	|	|	|
0.78									
23.083	0.11	0.51	0.044	| I	|	o	|	|	|
0.73									
23.167	0.11	0.48	0.041	| I	|	o	|	|	|
0.69									
23.250	0.11	0.45	0.039	| I	|	o	|	|	|
0.64									
23.333	0.11	0.42	0.036	| I	|	o	|	|	|
0.61									
23.417	0.11	0.40	0.034	| I	|	o	|	|	|
0.57									
23.500	0.11	0.38	0.032	| I	|	o	|	|	|
0.54									
23.583	0.11	0.36	0.030	| I	|	o	|	|	|
0.51									
23.667	0.11	0.34	0.029	| I	|	o	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

0.48									
23.750	0.11	0.32	0.027	|I	O	|	|	|	|
0.45									
23.833	0.11	0.30	0.026	|I	O	|	|	|	|
0.43									
23.917	0.11	0.29	0.025	|I	O	|	|	|	|
0.41									
24.000	0.11	0.27	0.023	|I	O	|	|	|	|
0.39									
24.083	0.06	0.26	0.022	|I	O	|	|	|	|
0.37									
24.167	0.01	0.24	0.021	I	O	|	|	|	|
0.34									
24.250	0.00	0.22	0.019	I	O	|	|	|	|
0.32									
24.333	0.00	0.21	0.018	I	O	|	|	|	|
0.29									
24.417	0.00	0.19	0.016	I	O	|	|	|	|
0.27									
24.500	0.00	0.17	0.015	I	O	|	|	|	|
0.25									
24.583	0.00	0.16	0.014	I	O	|	|	|	|
0.23									
24.667	0.00	0.15	0.013	I	O	|	|	|	|
0.21									
24.750	0.00	0.14	0.012	I	O	|	|	|	|
0.20									
24.833	0.00	0.13	0.011	I	O	|	|	|	|
0.18									
24.917	0.00	0.12	0.010	I	O	|	|	|	|
0.17									
25.000	0.00	0.11	0.009	IO		|	|	|	|
0.15									
25.083	0.00	0.10	0.009	IO		|	|	|	|
0.14									
25.167	0.00	0.09	0.008	IO		|	|	|	|
0.13									
25.250	0.00	0.08	0.007	IO		|	|	|	|
0.12									
25.333	0.00	0.08	0.007	IO		|	|	|	|
0.11									
25.417	0.00	0.07	0.006	IO		|	|	|	|
0.10									
25.500	0.00	0.07	0.006	IO		|	|	|	|
0.10									
25.583	0.00	0.06	0.005	IO		|	|	|	|
0.09									
25.667	0.00	0.06	0.005	IO		|	|	|	|
0.08									
25.750	0.00	0.05	0.004	O		|	|	|	|
0.07									
25.833	0.00	0.05	0.004	O		|	|	|	|
0.07									
25.917	0.00	0.04	0.004	O		|	|	|	|
0.06									
26.000	0.00	0.04	0.004	O		|	|	|	|
0.06									
26.083	0.00	0.04	0.003	O		|	|	|	|
0.05									
26.167	0.00	0.03	0.003	O		|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.05									
26.250	0.00	0.03	0.003	o	|	|	|	|	|
0.05									
26.333	0.00	0.03	0.003	o	|	|	|	|	|
0.04									
26.417	0.00	0.03	0.002	o	|	|	|	|	|
0.04									
26.500	0.00	0.03	0.002	o	|	|	|	|	|
0.04									
26.583	0.00	0.02	0.002	o	|	|	|	|	|
0.03									
26.667	0.00	0.02	0.002	o	|	|	|	|	|
0.03									
26.750	0.00	0.02	0.002	o	|	|	|	|	|
0.03									
26.833	0.00	0.02	0.002	o	|	|	|	|	|
0.03									
26.917	0.00	0.02	0.001	o	|	|	|	|	|
0.02									
27.000	0.00	0.02	0.001	o	|	|	|	|	|
0.02									
27.083	0.00	0.01	0.001	o	|	|	|	|	|
0.02									
27.167	0.00	0.01	0.001	o	|	|	|	|	|
0.02									
27.250	0.00	0.01	0.001	o	|	|	|	|	|
0.02									
27.333	0.00	0.01	0.001	o	|	|	|	|	|
0.02									
27.417	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.500	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.583	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.667	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.750	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.833	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
27.917	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
28.000	0.00	0.01	0.001	o	|	|	|	|	|
0.01									
28.083	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
28.167	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
28.250	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
28.333	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
28.417	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
28.500	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
28.583	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
28.667	0.00	0.00	0.000	o	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.00									
28.750	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
28.833	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
28.917	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.000	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.083	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.167	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.250	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.333	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.417	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.500	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.583	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.667	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.750	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.833	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
29.917	0.00	0.00	0.000	o	|	|	|	|	|
0.00									

```

*****HYDROGRAPH
DATA*****
      Number of intervals = 359
      Time interval = 5.0 (Min.)
      Maximum/Peak flow rate = 0.700 (CFS)
      Total volume = 1.087 (Ac.Ft)
      Status of hydrographs being held in storage
      Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
*****

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FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012
Study date: 11/11/21

Gateway Height
Basin Routing
Area A
2yr 24hr

--
Program License Serial Number 6232

--
***** HYDROGRAPH INFORMATION

From study/file name: moval33post242.rte
*****HYDROGRAPH
DATA*****
Number of intervals = 290
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 0.656 (CFS)
Total volume = 0.399 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000
0.000

++++
++++
Process from Point/Station 202.000 to Point/Station
203.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

--
Total number of inflow hydrograph intervals = 290
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

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Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.016	0.500	0.014	0.018
2.000	0.032	0.500	0.030	0.034
3.000	0.097	0.500	0.095	0.099
4.000	0.182	0.500	0.180	0.184
5.000	0.292	0.500	0.290	0.294
6.000	0.402	0.500	0.400	0.404

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time Depth (Hours) (Ft.)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)					
			.0	0.2	0.33	0.49	0.66	
0.083	0.02	0.00	0.000	OI	|	|	|	|
0.167	0.04	0.01	0.000	OI	|	|	|	|
0.250	0.04	0.01	0.000	OI	|	|	|	|
0.333	0.05	0.02	0.001	O I	|	|	|	|
0.417	0.06	0.03	0.001	|OI	|	|	|	|
0.500	0.06	0.03	0.001	|OI	|	|	|	|
0.583	0.06	0.04	0.001	|OI	|	|	|	|
0.667	0.06	0.04	0.001	| O	|	|	|	|
0.750	0.06	0.04	0.001	| O	|	|	|	|
0.833	0.07	0.05	0.002	| OI	|	|	|	|
0.917	0.08	0.05	0.002	| OI	|	|	|	|
1.000	0.08	0.06	0.002	| OI	|	|	|	|
1.083	0.07	0.06	0.002	| OI	|	|	|	|
1.167	0.06	0.06	0.002	| O	|	|	|	|

0.12									
1.250	0.06	0.06	0.002	O					
0.12									
1.333	0.06	0.06	0.002	O					
0.12									
1.417	0.06	0.06	0.002	O					
0.12									
1.500	0.06	0.06	0.002	O					
0.12									
1.583	0.06	0.06	0.002	O					
0.12									
1.667	0.06	0.06	0.002	O					
0.12									
1.750	0.06	0.06	0.002	O					
0.12									
1.833	0.07	0.06	0.002	OI					
0.12									
1.917	0.08	0.06	0.002	O					
0.12									
2.000	0.08	0.06	0.002	O					
0.13									
2.083	0.08	0.07	0.002	O					
0.13									
2.167	0.08	0.07	0.002	O					
0.14									
2.250	0.08	0.07	0.002	O					
0.14									
2.333	0.08	0.07	0.002	O					
0.14									
2.417	0.08	0.07	0.002	O					
0.15									
2.500	0.08	0.07	0.002	O					
0.15									
2.583	0.09	0.08	0.002	OI					
0.15									
2.667	0.10	0.08	0.003	OI					
0.16									
2.750	0.10	0.08	0.003	O					
0.16									
2.833	0.10	0.08	0.003	O					
0.17									
2.917	0.10	0.09	0.003	O					
0.17									
3.000	0.10	0.09	0.003	O					
0.18									
3.083	0.10	0.09	0.003	O					
0.18									
3.167	0.10	0.09	0.003	O					
0.18									
3.250	0.10	0.09	0.003	O					
0.19									
3.333	0.10	0.09	0.003	O					
0.19									
3.417	0.10	0.09	0.003	O					
0.19									
3.500	0.10	0.09	0.003	O					
0.19									
3.583	0.10	0.09	0.003	O					
0.19									
3.667	0.10	0.10	0.003	O					

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

0.19									
3.750	0.10	0.10	0.003	O					
0.19									
3.833	0.11	0.10	0.003	OI					
0.19									
3.917	0.12	0.10	0.003	OI					
0.20									
4.000	0.12	0.10	0.003	O					
0.21									
4.083	0.12	0.11	0.003	O					
0.21									
4.167	0.12	0.11	0.003	O					
0.21									
4.250	0.12	0.11	0.003	O					
0.22									
4.333	0.13	0.11	0.004	OI					
0.22									
4.417	0.13	0.12	0.004	OI					
0.23									
4.500	0.14	0.12	0.004	OI					
0.24									
4.583	0.14	0.12	0.004	OI					
0.24									
4.667	0.14	0.12	0.004	O					
0.25									
4.750	0.14	0.13	0.004	O					
0.25									
4.833	0.15	0.13	0.004	OI					
0.26									
4.917	0.15	0.13	0.004	OI					
0.27									
5.000	0.15	0.14	0.004	OI					
0.27									
5.083	0.13	0.14	0.004	O					
0.28									
5.167	0.12	0.14	0.004	IO					
0.27									
5.250	0.12	0.13	0.004	IO					
0.26									
5.333	0.13	0.13	0.004	O					
0.26									
5.417	0.13	0.13	0.004	O					
0.26									
5.500	0.14	0.13	0.004	O					
0.26									
5.583	0.15	0.13	0.004	OI					
0.27									
5.667	0.15	0.14	0.004	OI					
0.27									
5.750	0.15	0.14	0.004	OI					
0.28									
5.833	0.15	0.14	0.005	OI					
0.29									
5.917	0.15	0.14	0.005	O					
0.29									
6.000	0.15	0.15	0.005	O					
0.29									
6.083	0.16	0.15	0.005	OI					
0.30									
6.167	0.17	0.15	0.005	OI					

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.31								
6.250	0.17	0.16	0.005	|	OI	|	|	|
0.31								
6.333	0.17	0.16	0.005	|	OI	|	|	|
0.32								
6.417	0.17	0.16	0.005	|	OI	|	|	|
0.33								
6.500	0.17	0.17	0.005	|	O	|	|	|
0.33								
6.583	0.18	0.17	0.005	|	O	|	|	|
0.34								
6.667	0.19	0.17	0.005	|	OI	|	|	|
0.34								
6.750	0.19	0.18	0.006	|	OI	|	|	|
0.35								
6.833	0.19	0.18	0.006	|	OI	|	|	|
0.36								
6.917	0.19	0.18	0.006	|	OI	|	|	|
0.36								
7.000	0.19	0.18	0.006	|	OI	|	|	|
0.37								
7.083	0.19	0.19	0.006	|	|O	|	|	|
0.37								
7.167	0.19	0.19	0.006	|	|O	|	|	|
0.37								
7.250	0.19	0.19	0.006	|	|O	|	|	|
0.38								
7.333	0.20	0.19	0.006	|	|O	|	|	|
0.38								
7.417	0.21	0.19	0.006	|	|OI	|	|	|
0.39								
7.500	0.21	0.20	0.006	|	|OI	|	|	|
0.39								
7.583	0.22	0.20	0.006	|	|OI	|	|	|
0.40								
7.667	0.23	0.21	0.007	|	|OI	|	|	|
0.41								
7.750	0.23	0.21	0.007	|	|OI	|	|	|
0.42								
7.833	0.24	0.22	0.007	|	|OI	|	|	|
0.43								
7.917	0.25	0.22	0.007	|	|OI	|	|	|
0.44								
8.000	0.25	0.23	0.007	|	|OI	|	|	|
0.46								
8.083	0.27	0.23	0.007	|	|OI	|	|	|
0.47								
8.167	0.29	0.24	0.008	|	|OI	|	|	|
0.49								
8.250	0.29	0.25	0.008	|	|OI	|	|	|
0.50								
8.333	0.29	0.26	0.008	|	|OI	|	|	|
0.52								
8.417	0.29	0.27	0.008	|	|OI	|	|	|
0.53								
8.500	0.29	0.27	0.009	|	|OI	|	|	|
0.54								
8.583	0.30	0.27	0.009	|	|OI	|	|	|
0.55								
8.667	0.31	0.28	0.009	|	|OI	|	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

0.74									
11.250	0.37	0.37	0.012	|	|	|	O	|	|
0.74									
11.333	0.37	0.37	0.012	|	|	|	O	|	|
0.73									
11.417	0.37	0.37	0.012	|	|	|	O	|	|
0.73									
11.500	0.37	0.37	0.012	|	|	|	O	|	|
0.73									
11.583	0.35	0.37	0.012	|	|	|	IO	|	|
0.73									
11.667	0.33	0.36	0.012	|	|	|	IO	|	|
0.72									
11.750	0.33	0.35	0.011	|	|	|	IO	|	|
0.71									
11.833	0.34	0.35	0.011	|	|	|	IO	|	|
0.70									
11.917	0.35	0.35	0.011	|	|	|	O	|	|
0.70									
12.000	0.35	0.35	0.011	|	|	|	O	|	|
0.70									
12.083	0.42	0.36	0.011	|	|	|	O I	|	|
0.71									
12.167	0.48	0.37	0.012	|	|	|	O I	|	|
0.75									
12.250	0.48	0.39	0.013	|	|	|	O I	|	|
0.79									
12.333	0.49	0.41	0.013	|	|	|	O I	|	|
0.83									
12.417	0.50	0.43	0.014	|	|	|	O I	|	|
0.86									
12.500	0.50	0.44	0.014	|	|	|	O I	|	|
0.89									
12.583	0.52	0.46	0.015	|	|	|	O I	|	|
0.91									
12.667	0.54	0.47	0.015	|	|	|	O I	|	|
0.94									
12.750	0.54	0.48	0.016	|	|	|	O I	|	|
0.97									
12.833	0.55	0.50	0.016	|	|	|	O I	|	|
0.99									
12.917	0.56	0.50	0.016	|	|	|	O I	|	|
1.02									
13.000	0.56	0.50	0.017	|	|	|	O I	|	|
1.04									
13.083	0.61	0.50	0.017	|	|	|	O I	|	|
1.08									
13.167	0.65	0.50	0.018	|	|	|	O I	|	|
1.14									
13.250	0.66	0.50	0.019	|	|	|	O I	|	|
1.20									
13.333	0.66	0.50	0.020	|	|	|	O I	|	|
1.27									
13.417	0.66	0.50	0.021	|	|	|	O I	|	|
1.34									
13.500	0.66	0.50	0.022	|	|	|	O I	|	|
1.41									
13.583	0.54	0.50	0.023	|	|	|	O I	|	|
1.45									
13.667	0.45	0.50	0.023	|	|	|	I O	|	|

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

1.45									
13.750	0.44	0.50	0.023	|	|	|	I	O	|
1.42									
13.833	0.44	0.50	0.022	|	|	|	I	O	|
1.40									
13.917	0.44	0.50	0.022	|	|	|	I	O	|
1.38									
14.000	0.44	0.50	0.022	|	|	|	I	O	|
1.35									
14.083	0.49	0.50	0.021	|	|	|		IO	|
1.34									
14.167	0.52	0.50	0.021	|	|	|		OI	|
1.34									
14.250	0.52	0.50	0.022	|	|	|		OI	|
1.35									
14.333	0.51	0.50	0.022	|	|	|		O	|
1.35									
14.417	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.500	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.583	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.667	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.750	0.50	0.50	0.022	|	|	|		O	|
1.36									
14.833	0.49	0.50	0.022	|	|	|		IO	|
1.36									
14.917	0.48	0.50	0.022	|	|	|		IO	|
1.35									
15.000	0.48	0.50	0.022	|	|	|		IO	|
1.34									
15.083	0.47	0.50	0.021	|	|	|		IO	|
1.34									
15.167	0.46	0.50	0.021	|	|	|		I O	|
1.32									
15.250	0.46	0.50	0.021	|	|	|		I O	|
1.31									
15.333	0.45	0.50	0.021	|	|	|		I O	|
1.29									
15.417	0.44	0.50	0.020	|	|	|		I O	|
1.27									
15.500	0.44	0.50	0.020	|	|	|		I O	|
1.24									
15.583	0.40	0.50	0.019	|	|	|	I	O	|
1.21									
15.667	0.37	0.50	0.019	|	|	|	I	O	|
1.16									
15.750	0.37	0.50	0.018	|	|	|	I	O	|
1.10									
15.833	0.37	0.50	0.017	|	|	|	I	O	|
1.04									
15.917	0.37	0.49	0.016	|	|	|	I	O	|
0.99									
16.000	0.37	0.47	0.015	|	|	|	I	O	|
0.94									
16.083	0.21	0.43	0.014	|		I		O	|
0.87									
16.167	0.09	0.38	0.012	|	I	|		O	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.76									
16.250	0.08	0.32	0.010	I		O			
0.64									
16.333	0.08	0.27	0.009	I		O			
0.55									
16.417	0.08	0.24	0.008	I		O			
0.47									
16.500	0.08	0.20	0.007	I		O			
0.41									
16.583	0.07	0.18	0.006	I		O			
0.36									
16.667	0.06	0.16	0.005	I		O			
0.31									
16.750	0.06	0.14	0.004	I		O			
0.27									
16.833	0.06	0.12	0.004	I		O			
0.24									
16.917	0.06	0.11	0.003	I		O			
0.22									
17.000	0.06	0.10	0.003	I		O			
0.20									
17.083	0.08	0.09	0.003	IO					
0.19									
17.167	0.10	0.09	0.003			O			
0.18									
17.250	0.10	0.09	0.003			O			
0.19									
17.333	0.10	0.09	0.003			O			
0.19									
17.417	0.10	0.09	0.003			O			
0.19									
17.500	0.10	0.09	0.003			O			
0.19									
17.583	0.10	0.09	0.003			O			
0.19									
17.667	0.10	0.10	0.003			O			
0.19									
17.750	0.10	0.10	0.003			O			
0.19									
17.833	0.09	0.09	0.003			O			
0.19									
17.917	0.08	0.09	0.003	IO					
0.18									
18.000	0.08	0.09	0.003	IO					
0.18									
18.083	0.08	0.09	0.003	IO					
0.17									
18.167	0.08	0.09	0.003	IO					
0.17									
18.250	0.08	0.08	0.003	IO					
0.17									
18.333	0.08	0.08	0.003	IO					
0.16									
18.417	0.08	0.08	0.003			O			
0.16									
18.500	0.08	0.08	0.003			O			
0.16									
18.583	0.07	0.08	0.003			O			
0.16									
18.667	0.06	0.08	0.002	IO					

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

0.15									
18.750	0.06	0.07	0.002	| IO	|	|	|	|	|
0.14									
18.833	0.05	0.07	0.002	| IO	|	|	|	|	|
0.14									
18.917	0.04	0.06	0.002	| I O	|	|	|	|	|
0.13									
19.000	0.04	0.06	0.002	| IO	|	|	|	|	|
0.12									
19.083	0.05	0.06	0.002	| O	|	|	|	|	|
0.11									
19.167	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
19.250	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
19.333	0.07	0.06	0.002	| OI	|	|	|	|	|
0.11									
19.417	0.08	0.06	0.002	| OI	|	|	|	|	|
0.12									
19.500	0.08	0.06	0.002	| O	|	|	|	|	|
0.13									
19.583	0.07	0.07	0.002	| O	|	|	|	|	|
0.13									
19.667	0.06	0.06	0.002	| IO	|	|	|	|	|
0.13									
19.750	0.06	0.06	0.002	| IO	|	|	|	|	|
0.13									
19.833	0.05	0.06	0.002	| O	|	|	|	|	|
0.12									
19.917	0.04	0.06	0.002	| IO	|	|	|	|	|
0.12									
20.000	0.04	0.05	0.002	| IO	|	|	|	|	|
0.11									
20.083	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
20.167	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
20.250	0.06	0.05	0.002	| O	|	|	|	|	|
0.11									
20.333	0.06	0.05	0.002	| O	|	|	|	|	|
0.11									
20.417	0.06	0.05	0.002	| O	|	|	|	|	|
0.11									
20.500	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
20.583	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
20.667	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
20.750	0.06	0.06	0.002	| O	|	|	|	|	|
0.11									
20.833	0.05	0.06	0.002	| O	|	|	|	|	|
0.11									
20.917	0.04	0.05	0.002	| IO	|	|	|	|	|
0.11									
21.000	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
21.083	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
21.167	0.06	0.05	0.002	| O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.10									
21.250	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
21.333	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
21.417	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
21.500	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
21.583	0.05	0.05	0.002	| O	|	|	|	|	|
0.09									
21.667	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
21.750	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
21.833	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
21.917	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
22.000	0.04	0.05	0.002	| IO	|	|	|	|	|
0.09									
22.083	0.05	0.05	0.001	| O	|	|	|	|	|
0.09									
22.167	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
22.250	0.06	0.05	0.002	| O	|	|	|	|	|
0.10									
22.333	0.05	0.05	0.002	| O	|	|	|	|	|
0.10									
22.417	0.04	0.05	0.002	| IO	|	|	|	|	|
0.10									
22.500	0.04	0.05	0.002	| IO	|	|	|	|	|
0.09									
22.583	0.04	0.05	0.001	| IO	|	|	|	|	|
0.09									
22.667	0.04	0.04	0.001	| IO	|	|	|	|	|
0.09									
22.750	0.04	0.04	0.001	| IO	|	|	|	|	|
0.09									
22.833	0.04	0.04	0.001	| IO	|	|	|	|	|
0.08									
22.917	0.04	0.04	0.001	| IO	|	|	|	|	|
0.08									
23.000	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.083	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.167	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.250	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.333	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.417	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.500	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.583	0.04	0.04	0.001	| O	|	|	|	|	|
0.08									
23.667	0.04	0.04	0.001	| O	|	|	|	|	|

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

0.08									
23.750	0.04	0.04	0.001	|o	|	|	|	|	|
0.08									
23.833	0.04	0.04	0.001	|o	|	|	|	|	|
0.08									
23.917	0.04	0.04	0.001	|o	|	|	|	|	|
0.08									
24.000	0.04	0.04	0.001	|o	|	|	|	|	|
0.08									
24.083	0.02	0.04	0.001	IO	|	|	|	|	|
0.07									
24.167	0.00	0.03	0.001	IO	|	|	|	|	|
0.06									
24.250	0.00	0.03	0.001	IO	|	|	|	|	|
0.05									
24.333	0.00	0.02	0.001	o	|	|	|	|	|
0.04									
24.417	0.00	0.02	0.001	o	|	|	|	|	|
0.03									
24.500	0.00	0.01	0.000	o	|	|	|	|	|
0.03									
24.583	0.00	0.01	0.000	o	|	|	|	|	|
0.02									
24.667	0.00	0.01	0.000	o	|	|	|	|	|
0.02									
24.750	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
24.833	0.00	0.01	0.000	o	|	|	|	|	|
0.01									
24.917	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
25.000	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
25.083	0.00	0.00	0.000	o	|	|	|	|	|
0.01									
25.167	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.250	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.333	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.417	0.00	0.00	0.000	o	|	|	|	|	|
0.00									
25.500	0.00	0.00	0.000	o	|	|	|	|	|
0.00									

*****HYDROGRAPH
DATA*****
Number of intervals = 306
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 0.500 (CFS)
Total volume = 0.399 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Moreno Valley 33 - Area A Pre-Development								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	5.4	0.13	2.9	0.14	2.5	0.15	0.5	0.12
5 year	7.8	0.20	4.1	0.23	3.6	0.24	1.0	0.25
10 year	9.6	0.26	5.1	0.31	4.5	0.32	1.4	0.37
100 year	16.2	0.51	8.9	0.75	7.9	0.94	3.1	1.35

Moreno Valley 33 - Area A Post-Development								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	4.6	0.12	2.4	0.18	2.1	0.23	0.7	0.40
5 year	6.5	0.17	3.3	0.24	3.0	0.32	0.9	0.53
10 year	8.0	0.21	4.1	0.30	3.6	0.38	1.1	0.63
100 year	13.1	0.37	6.8	0.55	6.1	0.69	2.3	1.17

Moreno Valley 33 - Area A Post-Development Routed								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year							0.5*	0.02
100 year	0.5	0.33	6.4	0.21	5.5	0.21	2.3	0.19

By orifice control or 6" underdrain slope

Moreno Valley 33 - Area B Pre-Development								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	8.2	0.18	4.1	0.20	3.5	0.21	0.7	0.18
5 year	11.8	0.29	6.0	0.33	5.1	0.35	1.4	0.37
10 year	14.5	0.38	7.4	0.45	6.3	0.47	2	0.54
100 year	24.4	0.74	12.9	1.09	11.2	1.37	4.5	1.96

Moreno Valley 33 - Area B Post-Development (Area B and C Pre-Development)								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	11.4	0.31	6.4	0.48	5.6	0.64	1.8	1.09
5 year	16.2	0.45	8.9	0.66	7.9	0.86	2.4	1.44
10 year	19.9	0.56	10.9	0.80	9.6	1.04	3.1	1.73
100 year	32.7	1.01	18.2	1.5	16.2	1.89	6.2	3.18

Moreno Valley 33 - Area B Post-Development Routed								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year							0.7*	0.35
100 year	18.0	0.76	15.9	0.73	13.8	0.71	6.1	0.63

*By orifice control or 6" underdrain slope

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Basin Stage-Storage-Outfall Chart					
	Depth		Vol [acft]	Vol Total [acft]	Q out [cfs]*
	[ft]	Area [sf]			
Basin B	0	8356			
	1	8356	0.058	0.058	0.7
	2	8356	0.058	0.115	0.7
	3	9566	0.206	0.321	0.7
	4	10831	0.234	0.555	0.7
	5	12153	0.264	0.819	24.0
	6	13532	0.265	1.084	24.0

0.5 cfs limited by 6" underdrain or Orifice to match 2yr 24hr

Basin Stage-Storage-Outfall Chart					
	Depth		Vol [acft]	Vol Total [acft]	Q out [cfs]*
	[ft]	Area [sf]			
Basin A	0	2355			
	1	2355	0.016	0.016	0.5
	2	2355	0.016	0.032	0.5
	3	3229	0.064	0.097	0.5
	4	4223	0.086	0.182	0.5
	5	5318	0.110	0.292	24.0
	6	6422	0.111	0.402	24.0

0.7 cfs limited by 6" underdrain or Orifice to match 2yr 24hr

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1 on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input checked="" type="checkbox"/> A. On-site storm drain inlets	<input checked="" type="checkbox"/> Locations of inlets.	<input checked="" type="checkbox"/> Mark all inlets with the words “Only Rain Down the Storm Drain” or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	<input checked="" type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input checked="" type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input checked="" type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com <input checked="" type="checkbox"/> Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains.”
<input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps		<input type="checkbox"/> State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.
<input type="checkbox"/> C. Interior parking garages		<input type="checkbox"/> State that parking garage floor drains will be plumbed to the sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> D1. Need for future indoor & structural pest control		<input type="checkbox"/> Note building design features that discourage entry of pests.	<input type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators.
<input checked="" type="checkbox"/> D2. Landscape/ Outdoor Pesticide Use	<input type="checkbox"/> Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. <input type="checkbox"/> Show self-retaining landscape areas, if any. <input checked="" type="checkbox"/> Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	State that final landscape plans will accomplish all of the following. <input type="checkbox"/> Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. <input checked="" type="checkbox"/> Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. <input checked="" type="checkbox"/> Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. <input checked="" type="checkbox"/> Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	<input checked="" type="checkbox"/> Maintain landscaping using minimum or no pesticides. <input checked="" type="checkbox"/> See applicable operational BMPs in “What you should know for.....Landscape and Gardening” at http://rcflood.org/stormwater/Error! Hyperlink reference not valid. Provide IPM information to new owners, lessees and operators. <input checked="" type="checkbox"/>

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features.	<input type="checkbox"/> Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	<input type="checkbox"/> See applicable operational BMPs in “Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain” at http://rcflood.org/stormwater/
<input type="checkbox"/> F. Food service	<input type="checkbox"/> For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. <input type="checkbox"/> On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	<input type="checkbox"/> Describe the location and features of the designated cleaning area. <input type="checkbox"/> Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	<input type="checkbox"/> See the brochure, “The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries” at http://rcflood.org/stormwater/ Provide this brochure to new site owners, lessees, and operators.
<input type="checkbox"/> G. Refuse areas	<input type="checkbox"/> Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. <input type="checkbox"/> If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent runoff and show locations of berms to prevent runoff from the area. <input type="checkbox"/> Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	<input type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans. <input type="checkbox"/> State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	<input type="checkbox"/> State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, “Waste Handling and Disposal” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> H. Industrial processes.	<input type="checkbox"/> Show process area.	<input type="checkbox"/> If industrial processes are to be located on site, state: “All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.”	<input type="checkbox"/> See Fact Sheet SC-10, “Non-Stormwater Discharges” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure “Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities” at http://rcflood.org/stormwater/

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	<input type="checkbox"/> Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. <input type="checkbox"/> Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. <input type="checkbox"/> Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	<p>Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.</p> <p>Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:</p> <ul style="list-style-type: none"> ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank <p>www.cchealth.org/groups/hazmat/</p>	<input type="checkbox"/> See the Fact Sheets SC-31, “Outdoor Liquid Container Storage” and SC-33, “Outdoor Storage of Raw Materials ” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input checked="" type="checkbox"/> J. Vehicle and Equipment Cleaning	<input type="checkbox"/> Show on drawings as appropriate: <ul style="list-style-type: none"> (1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use). (3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed. 	<input checked="" type="checkbox"/> If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.	<p>Describe operational measures to implement the following (if applicable):</p> <input checked="" type="checkbox"/> Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to “Outdoor Cleaning Activities and Professional Mobile Service Providers” for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ <input type="checkbox"/> Car dealerships and similar may rinse cars with water only.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<p><input type="checkbox"/> K. Vehicle/Equipment Repair and Maintenance</p>	<p><input type="checkbox"/> Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.</p> <p><input type="checkbox"/> Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.</p> <p><input type="checkbox"/> Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.</p>	<p><input type="checkbox"/> State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.</p> <p><input type="checkbox"/> State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency’s requirements.</p> <p><input type="checkbox"/> State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency’s requirements.</p>	<p>In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:</p> <p><input type="checkbox"/> No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.</p> <p><input type="checkbox"/> No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.</p> <p><input type="checkbox"/> No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.</p> <p>Refer to “Automotive Maintenance & Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations”. Brochure can be found at http://rcflood.org/stormwater/</p> <p>Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/</p>

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> L. Fuel Dispensing Areas	<input type="checkbox"/> Fueling areas ⁶ shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. <input type="checkbox"/> Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area ¹ .] The canopy [or cover] shall not drain onto the fueling area.		<input type="checkbox"/> The property owner shall dry sweep the fueling area routinely. <input type="checkbox"/> See the Fact Sheet SD-30 , “Fueling Areas” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

⁶ The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> M. Loading Docks	<input type="checkbox"/> Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer. <input type="checkbox"/> Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. <input type="checkbox"/> Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		<input type="checkbox"/> Move loaded and unloaded items indoors as soon as possible. <input type="checkbox"/> See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> N. Fire Sprinkler Test Water		<input type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer.	<input type="checkbox"/> See the note in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
<p>O. Miscellaneous Drain or Wash Water or Other Sources</p> <input type="checkbox"/> Boiler drain lines <input checked="" type="checkbox"/> Condensate drain lines <input checked="" type="checkbox"/> Rooftop equipment <input type="checkbox"/> Drainage sumps <input checked="" type="checkbox"/> Roofing, gutters, and trim. <input type="checkbox"/> Other sources		<input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. <input checked="" type="checkbox"/> Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. <input checked="" type="checkbox"/> Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. <input type="checkbox"/> Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. <input checked="" type="checkbox"/> Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. Include controls for other sources as specified by local reviewer.	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input type="checkbox"/> P. Plazas, sidewalks, and parking lots.			<input type="checkbox"/> Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Operation & Maintenance responsibility for Treatment Control BMP's will be outlined in the CC&R's for the project and be enforced by the Home Owner's Association, or will be provided by an alternative method as approved by the County of Riverside. The final documents and methodology to be provided as part of the Final WQMP.

Appendix 10: Educational Materials To be provided during final engineering

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Bioretention

TC-32



General Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through a sand bed and is subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

Inspection/Maintenance Considerations

Bioretention requires frequent landscaping maintenance, including measures to ensure that the area is functioning properly, as well as maintenance of the landscaping on the practice. In many cases, bioretention areas initially require intense maintenance, but less maintenance is needed over time. In many cases, maintenance tasks can be completed by a landscaping contractor, who may already be hired at the site. In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

Maintenance Concerns, Objectives, and Goals

- Clogged Soil or Outlet Structures
- Invasive Species
- Vegetation/Landscape Maintenance
- Erosion
- Channelization of Flow
- Aesthetics

Targeted Constituents

<input checked="" type="checkbox"/>	Sediment	■
<input checked="" type="checkbox"/>	Nutrients	▲
<input checked="" type="checkbox"/>	Trash	■
<input checked="" type="checkbox"/>	Metals	■
<input checked="" type="checkbox"/>	Bacteria	■
<input checked="" type="checkbox"/>	Oil and Grease	■
<input checked="" type="checkbox"/>	Organics	■
<input checked="" type="checkbox"/>	Oxygen Demanding	■

Legend (Removal Effectiveness)

- Low
- High
- ▲ Medium



TC-32

Bioretention

Inspection Activities	Suggested Frequency
<ul style="list-style-type: none"> ■ Inspect soil and repair eroded areas. 	Monthly
<ul style="list-style-type: none"> ■ Inspect for erosion or damage to vegetation, preferably at the end of the wet season to schedule summer maintenance and before major fall runoff to be sure the strips are ready for winter. However, additional inspection after periods of heavy runoff is desirable. 	Semi-annual inspection
<ul style="list-style-type: none"> ■ Inspect to ensure grass is well established. If not, either prepare soil and reseed or replace with alternative species. Install erosion control blanket. 	
<ul style="list-style-type: none"> ■ Check for debris and litter, and areas of sediment accumulation. ■ Inspect health of trees and shrubs. 	
Maintenance Activities	Suggested Frequency
<ul style="list-style-type: none"> ■ Water plants daily for 2 weeks. 	At project completion
<ul style="list-style-type: none"> ■ Remove litter and debris. 	Monthly
<ul style="list-style-type: none"> ■ Remove sediment. ■ Remulch void areas. ■ Treat diseased trees and shrubs. ■ Mow turf areas. ■ Repair erosion at inflow points. ■ Repair outflow structures. ■ Unclog underdrain. ■ Regulate soil pH regulation. 	As needed
<ul style="list-style-type: none"> ■ Remove and replace dead and diseased vegetation. 	Semi-annual
<ul style="list-style-type: none"> ■ Add mulch. 	Annual
<ul style="list-style-type: none"> ■ Replace tree stakes and wires. 	Every 2-3 years, or as needed
<ul style="list-style-type: none"> ■ Mulch should be replaced every 2 to 3 years or when bare spots appear. Remulch prior to the wet season. 	

Additional Information

Landscaping is critical to the function and aesthetic value of bioretention areas. It is preferable to plant the area with native vegetation, or plants that provide habitat value, where possible. Another important design feature is to select species that can withstand the hydrologic regime they will experience. At the bottom of the bioretention facility, plants that tolerate both wet and dry conditions are preferable. At the edges, which will remain primarily dry, upland species will be the most resilient. It is best to select a combination of trees, shrubs, and herbaceous materials.

References

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: <http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm>

Bioretention

TC-32

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July, 1998, revised February, 2002.

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at: cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

3.5 Bioretention Facility

Type of BMP	LID – Bioretention
Treatment Mechanisms	Infiltration, Evapotranspiration, Evaporation, Biofiltration
Maximum Drainage Area	This BMP is intended to be integrated into a project’s landscaped area in a distributed manner. Typically, contributing drainage areas to Bioretention Facilities range from less than 1 acre to a maximum of around 10 acres.
Other Names	Rain Garden, Bioretention Cell, Bioretention Basin, Biofiltration Basin, Landscaped Filter Basin, Porous Landscape Detention

Description

Bioretention Facilities are shallow, vegetated basins underlain by an engineered soil media. Healthy plant and biological activity in the root zone maintain and renew the macro-pore space in the soil and maximize plant uptake of pollutants and runoff. This keeps the Best Management Practice (BMP) from becoming clogged and allows more of the soil column to function as both a sponge (retaining water) and a highly effective and self-maintaining biofilter. In most cases, the bottom of a Bioretention Facility is unlined, which also provides an opportunity for infiltration to the extent the underlying onsite soil can accommodate. When the infiltration rate of the underlying soil is exceeded, fully biotreated flows are discharged via underdrains. Bioretention Facilities therefore will inherently achieve the maximum feasible level of infiltration and evapotranspiration and achieve the minimum feasible (but highly biotreated) discharge to the storm drain system.

Siting Considerations

These facilities work best when they are designed in a relatively level area. Unlike other BMPs, Bioretention Facilities can be used in smaller landscaped spaces on the site, such as:

- ✓ Parking islands
- ✓ Medians
- ✓ Site entrances

Landscaped areas on the site (such as may otherwise be required through minimum landscaping ordinances), can often be designed as Bioretention Facilities. This can be accomplished by:

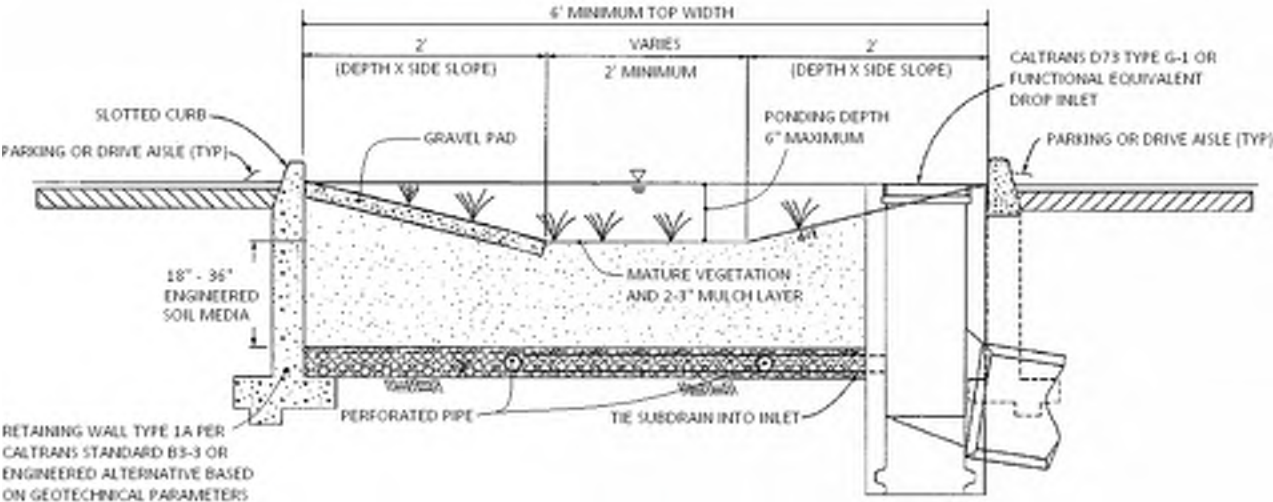
- *Depressing* landscaped areas below adjacent impervious surfaces, rather than elevating those areas
- Grading the site to direct runoff from those impervious surfaces *into* the Bioretention Facility, rather than away from the landscaping
- Sizing and designing the depressed landscaped area as a Bioretention Facility as described in this Fact Sheet

Bioretention Facilities should however not be used downstream of areas where large amounts of sediment can clog the system. Placing a Bioretention Facility at the toe of a steep slope should also be avoided due to the potential for clogging the engineered soil media with erosion from the slope, as well as the potential for damaging the vegetation.

Design and Sizing Criteria

The recommended cross section necessary for a Bioretention Facility includes:

- Vegetated area
- 18' minimum depth of engineered soil media
- 12' minimum gravel layer depth with 6' perforated pipes (added flow control features such as orifice plates may be required to mitigate for HCOG conditions)



While the 18-inch minimum engineered soil media depth can be used in some cases, it is recommended to use 24 inches or a preferred 36 inches to provide an adequate root zone for the chosen plant palate. Such a design also provides for improved removal effectiveness for nutrients. The recommended ponding depth inside of a Bioretention Facility is 6 inches; measured from the flat bottom surface to the top of the water surface as shown in Figure 1.

Because this BMP is filled with an engineered soil media, pore space in the soil and gravel layer is assumed to provide storage volume. However, several considerations must be noted:

- Surcharge storage above the soil surface (6 inches) is important to assure that design flows do not bypass the BMP when runoff exceeds the soil’s absorption rate.
- In cases where the Bioretention Facility contains engineered soil media deeper than 36 inches, the pore space within the engineered soil media can only be counted to the 36-inch depth.
- A maximum of 30 percent pore space can be used for the soil media whereas a maximum of 40 percent pore space can be use for the gravel layer.

Figure 1: Standard Layout for a Bioretention Facility

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

BIORETENTION FACILITY BMP FACT SHEET

Engineered Soil Media Requirements

The engineered soil media shall be comprised of 85 percent mineral component and 15 percent organic component, by volume, drum mixed prior to placement. The mineral component shall be a Class A sandy loam topsoil that meets the range specified in Table 1 below. The organic component shall be nitrogen stabilized compost¹, such that nitrogen does not leach from the media.

Table 1: Mineral Component Range Requirements

Percent Range	Component
70-80	Sand
15-20	Silt
5-10	Clay

The trip ticket, or certificate of compliance, shall be made available to the inspector to prove the engineered mix meets this specification.

Vegetation Requirements

Vegetative cover is important to minimize erosion and ensure that treatment occurs in the Bioretention Facility. The area should be designed for at least 70 percent mature coverage throughout the Bioretention Facility. To prevent the BMP from being used as walkways, Bioretention Facilities shall be planted with a combination of small trees, densely planted shrubs, and natural grasses. Grasses shall be native or ornamental; preferably ones that do not need to be mowed. The application of fertilizers and pesticides should be minimal. To maintain oxygen levels for the vegetation and promote biodegradation, it is important that vegetation not be completely submerged for any extended period of time. Therefore, a maximum of 6 inches of ponded water shall be used in the design to ensure that plants within the Bioretention Facility remain healthy.

A 2 to 3-inch layer of standard shredded aged hardwood mulch shall be placed as the top layer inside the Bioretention Facility. The 6-inch ponding depth shown in Figure 1 above shall be measured from the top surface of the 2 to 3-inch mulch layer.

Curbs Cuts

To allow water to flow into the Bioretention Facility, 1-foot-wide (minimum) curb cuts should be placed approximately every 10 feet around the perimeter of the Bioretention Facility. Figure 2 shows a curb cut in a Bioretention Facility. Curbs cut flow lines must be at or above the V_{BMP} water surface level.

¹ For more information on compost, visit the US Composting Council website at: <http://compostingcouncil.org/>

BIORETENTION FACILITY BMP FACT SHEET



Figure 2: Curb Cut located in a Bioretention Facility

To reduce erosion, a gravel pad shall be placed at each inlet point to the Bioretention Facility. The gravel should be 1- to 1.5-inch diameter in size. The gravel should overlap the curb cut opening a minimum of 6 inches. The gravel pad inside the Bioretention Facility should be flush with the finished surface at the curb cut and extend to the bottom of the slope.

In addition, place an apron of stone or concrete, a foot square or larger, inside each inlet to prevent vegetation from growing up and blocking the inlet. See Figure 3.

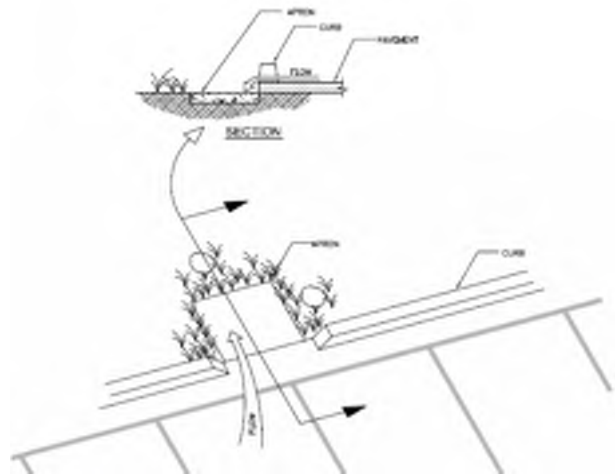


Figure 3: Apron located in a Bioretention Facility

Terracing the Landscaped Filter Basin

It is recommended that Bioretention Facilities be level. In the event the facility site slopes and lacks proper design, water would fill the lowest point of the BMP and then discharge from the basin without being treated. To ensure that the water will be held within the Bioretention Facility on sloped sites, the BMP must be terraced with nonporous check dams to provide the required storage and treatment capacity.

The terraced version of this BMP shall be used on non-flat sites with no more than a 3 percent slope. The surcharge depth cannot exceed 0.5 feet, and side slopes shall not exceed 4:1. Table 2 below shows the spacing of the check dams, and slopes shall be rounded up (i.e., 2.5 percent slope shall use 10' spacing for check dams).

Table 2: Check Dam Spacing

6" Check Dam Spacing	
Slope	Spacing
1%	25'
2%	15'
3%	10'

BIORETENTION FACILITY BMP FACT SHEET

Roof Runoff

Roof downspouts may be directed towards Bioretention Facilities. However, the downspouts must discharge onto a concrete splash block to protect the Bioretention Facility from erosion.

Retaining Walls

It is recommended that Retaining Wall Type 1A, per Caltrans Standard B3-3 or equivalent, be constructed around the entire perimeter of the Bioretention Facility. This practice will protect the sides of the Bioretention Facility from collapsing during construction and maintenance or from high service loads adjacent to the BMP. Where such service loads would not exist adjacent to the BMP, an engineered alternative may be used if signed by a licensed civil engineer.

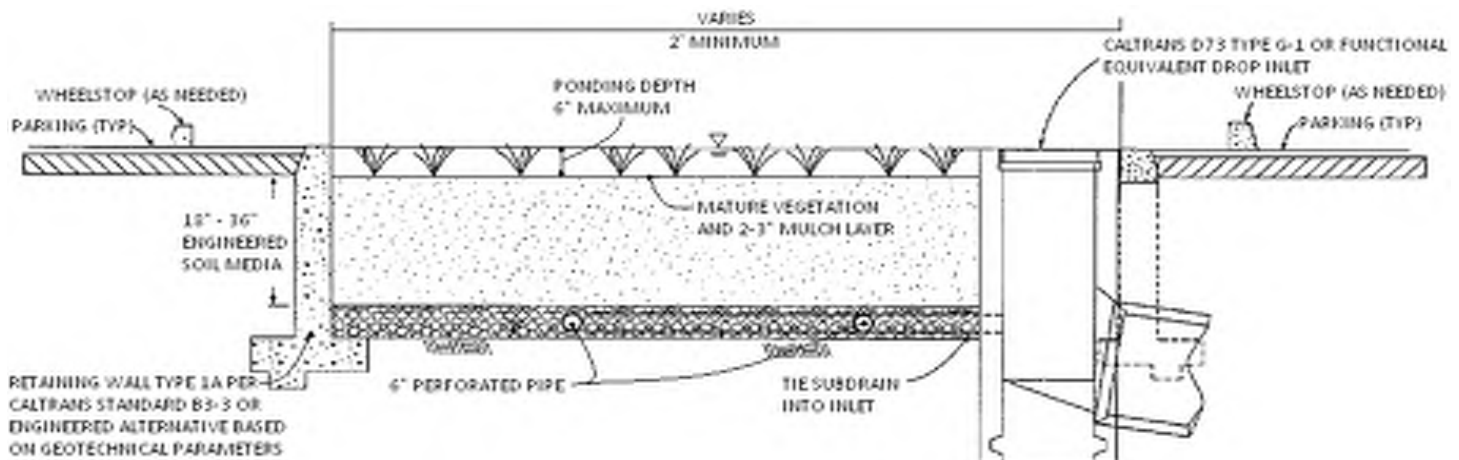
Side Slope Requirements

Bioretention Facilities Requiring Side Slopes

The design should assure that the Bioretention Facility does not present a tripping hazard. Bioretention Facilities proposed near pedestrian areas, such as areas parallel to parking spaces or along a walkway, must have a gentle slope to the bottom of the facility. Side slopes inside of a Bioretention Facility shall be 4:1. A typical cross section for the Bioretention Facility is shown in Figure 1.

Bioretention Facilities Not Requiring Side Slopes

Where cars park perpendicular to the Bioretention Facility, side slopes are not required. A 6-inch maximum drop may be used, and the Bioretention Facility must be planted with trees and shrubs to prevent pedestrian access. In this case, a curb is not placed around the Bioretention Facility, but wheel stops shall be used to prevent vehicles from entering the Bioretention Facility, as shown in Figure 4.



BIORETENTION FACILITY BMP FACT SHEET

Planter Boxes

Bioretention Facilities can also be placed above ground as planter boxes. Planter boxes must have a minimum width of 2 feet, a maximum surcharge depth of 6 inches, and no side slopes are necessary. Planter boxes must be constructed so as to ensure that the top surface of the engineered soil media will remain level. This option may be constructed of concrete, brick, stone or other stable materials that will not warp or bend. Chemically treated wood or galvanized steel, which has the ability to contaminate stormwater, should not be used. Planter boxes must be lined with an impermeable liner on all sides, including the bottom. Due to the impermeable liner, the inside bottom of the planter box shall be designed and constructed with a cross fall, directing treated flows within the subdrain layer toward the point where subdrain exits the planter box, and subdrains shall be oriented with drain holes oriented down. These provisions will help avoid excessive stagnant water within the gravel underdrain layer. Similar to the in-ground Bioretention Facility versions, this BMP benefits from healthy plants and biological activity in the root zone. Planter boxes should be planted with appropriately selected vegetation.



Figure 5: Planter Box

Source: LA Team Effort

Overflow

An overflow route is needed in the Bioretention Facility design to bypass stored runoff from storm events larger than V_{BMP} or in the event of facility or subdrain clogging. Overflow systems must connect to an acceptable discharge point, such as a downstream conveyance system as shown in Figure 1 and Figure 4. The inlet to the overflow structure shall be elevated inside the Bioretention Facility to be flush with the ponding surface for the design capture volume (V_{BMP}) as shown in Figure 4. This will allow the design capture volume to be fully treated by the Bioretention Facility, and for larger events to safely be conveyed to downstream systems. The overflow inlet shall **not** be located in the entrance of a Bioretention Facility, as shown in Figure 6.

BIORETENTION FACILITY BMP FACT SHEET

Underdrain Gravel and Pipes

An underdrain gravel layer and pipes shall be provided in accordance with Appendix B – Underdrains.



Figure 6: Incorrect Placement of an Overflow Inlet.

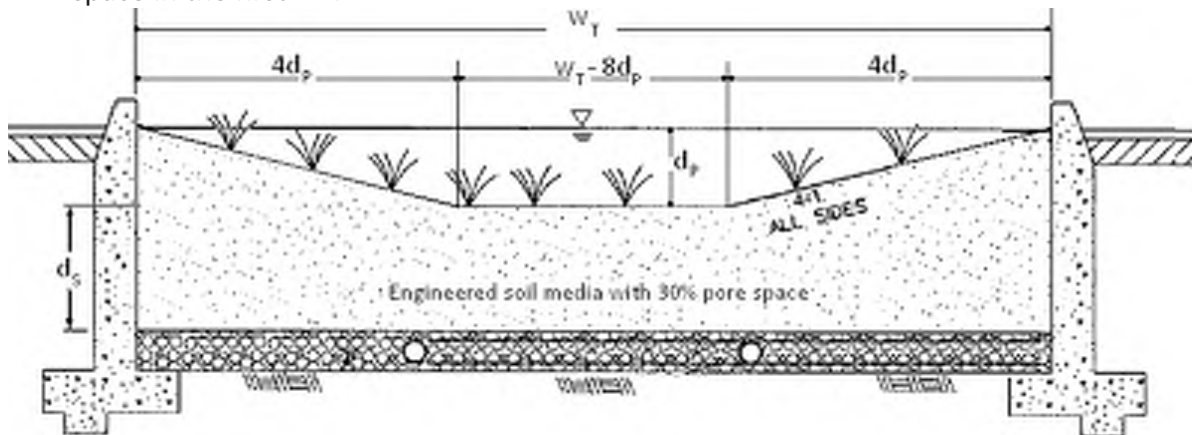
Inspection and Maintenance Schedule

The Bioretention Facility area shall be inspected for erosion, dead vegetation, soggy soils, or standing water. The use of fertilizers and pesticides on the plants inside the Bioretention Facility should be minimized.

Schedule	Activity
Ongoing	<ul style="list-style-type: none"> • Keep adjacent landscape areas maintained. Remove clippings from landscape maintenance activities. • Remove trash and debris • Replace damaged grass and/or plants • Replace surface mulch layer as needed to maintain a 2-3 inch soil cover.
After storm events	<ul style="list-style-type: none"> • Inspect areas for ponding
Annually	<ul style="list-style-type: none"> • Inspect/clean inlets and outlets

Bioretention Facility Design Procedure

- 1) Enter the area tributary, A_T , to the Bioretention Facility.
- 2) Enter the Design Volume, V_{BMP} , determined from Section 2.1 of this Handbook.
- 3) Select the type of design used. There are two types of Bioretention Facility designs: the standard design used for most project sites that include side slopes, and the modified design used when the BMP is located perpendicular to the parking spaces or with planter boxes that do not use side slopes.
- 4) Enter the depth of the engineered soil media, d_s . The minimum depth for the engineered soil media can be 18' in limited cases, but it is recommended to use 24' or a preferred 36' to provide an adequate root zone for the chosen plant palette. Engineered soil media deeper than 36' will only get credit for the pore space in the first 36'.
- 5) Enter the top width of the Bioretention Facility.
- 6) Calculate the total effective depth, d_E , within the Bioretention Facility. The maximum allowable pore space of the soil media is 30% while the maximum allowable pore space for the gravel layer is 40%. Gravel layer deeper than 12' will only get credit for the pore space in the first 12'.



- a. For the design with side slopes the following equation shall be used to determine the total effective depth. Where, d_p is the depth of ponding within the basin.

$$d_E(\text{ft}) = \frac{0.3 \times \left[(w_T(\text{ft}) \times d_s(\text{ft})) + 4(d_p(\text{ft}))^2 \right] + 0.4 \times 1(\text{ft}) + d_p(\text{ft}) [4d_p(\text{ft}) + (w_T(\text{ft}) - 8d_p(\text{ft}))]}{w_T(\text{ft})}$$

This above equation can be simplified if the maximum ponding depth of 0.5' is used. The equation below is used on the worksheet to find the minimum area required for the Bioretention Facility:

$$d_E(\text{ft}) = (0.3 \times d_s(\text{ft}) + 0.4 \times 1(\text{ft})) - \left(\frac{0.7(\text{ft}^2)}{w_T(\text{ft})} \right) + 0.5(\text{ft})$$

- b. For the design without side slopes the following equation shall be used to determine the total effective depth:

$$d_E(\text{ft}) = d_p(\text{ft}) + [(0.3) \times d_s(\text{ft}) + (0.4) \times 1(\text{ft})]$$

The equation below, using the maximum ponding depth of 0.5', is used on the worksheet to find the minimum area required for the Bioretention Facility:

$$d_E(\text{ft}) = 0.5(\text{ft}) + [(0.3) \times d_s(\text{ft}) + (0.4) \times 1(\text{ft})]$$

- 7) Calculate the minimum surface area, A_M , required for the Bioretention Facility. This does not include the curb surrounding the Bioretention Facility or side slopes.

$$A_M(\text{ft}^2) = \frac{V_{\text{BMP}}(\text{ft}^3)}{d_E(\text{ft})}$$

- 8) Enter the proposed surface area. This area shall not be less than the minimum required surface area.
- 9) Verify that side slopes are no steeper than 4:1 in the standard design, and are not required in the modified design.
- 10) Provide the diameter, minimum 6 inches, of the perforated underdrain used in the Bioretention Facility. See Appendix B for specific information regarding perforated pipes.
- 11) Provide the slope of the site around the Bioretention Facility, if used. The maximum slope is 3 percent for a standard design.
- 12) Provide the check dam spacing, if the site around the Bioretention Facility is sloped.
- 13) Describe the vegetation used within the Bioretention Facility.

References Used to Develop this Fact Sheet

Anderson, Dale V. "Landscaped Filter Basin Soil Requirements." Riverside, May 2010.

California Department of Transportation. CalTrans Standard Plans. 15 September 2005. May 2010 <http://www.dot.ca.gov/hq/esc/oe/project_plans/HTM/stdplns-met-new99.htm>.

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Appendix J
Planned Unit Development

UNITED ENGINEERING GROUP

Gateway Heights Planned Unit Development Moreno Valley, California

November 2022

Prepared for:

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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

PLANNED UNIT DEVELOPMENT

FOR

Gateway Heights

November 2022

Submitted to



City of Moreno Valley
 14177 Fredrick Street
 Moreno Valley, CA 92552
 (951) 413-3000

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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

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Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

UEG Project No. 30182

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- A. Vicinity Map
- B. Development Area
- C. USGS Topographic Map
- D. FEMA FIRM Map
- E. General Plan Map
- F. Zoning Map
- G. Area Circulation Map
- H. Gateway Specific Plan
- I. Surrounding Jurisdictions
- J. Open Space/Park Plan
- K. Cluster Detail
- L. Street Sections
- M. Conceptual Wall & Fence Plan

ARCHITECTURE

- A-1.1 – Plan 1 Floor Plan A
- A-1.2 – Plan 1 Floor Plan B
- A-1.3 – Plan 1 Elevation A
- A-1.4 – Plan 1 Elevation B
- A-2.1 – Plan 2 Floor Plan A
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- A-3.1 – Plan 3 Floor Plan A
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SITE PLAN

- Sheet 1 – Preliminary Site Plan
- Sheet 2 – Preliminary Grading & Drainage Plan

1.0 PURPOSE

The purpose of this Planned Unit Development (PUD) is to describe the overall design concept for the Gateway Heights project and outline the design details that will be incorporated into the final design decisions. The Gateway Heights project presents innovative housing options within the City of Moreno Valley, while delivering a vast amount of recreational open space to the surrounding communities. This manual includes both design standards and guidelines. The guidelines in this document will lay out both functional and aesthetic design concepts as an overall strategy to be followed at the time of development. The primary objective is to establish a consistent theme throughout the project. This document will establish design standards, overall theme, wall and fence concepts, and pedestrian connectivity to be used in the future build out of this project. This Planned Unit Development (PUD) is being processed in conformance with City of Moreno Valley Municipal Code, Chapter 9.03.060.

2.0 PROJECT BACKGROUND & DESCRIPTION

Gateway Heights is located north of Jennings Court and east of Morton Road in the City of Moreno Valley (Refer to **Exhibit A – Vicinity Map**). The property contains 32.70 acres in the foothill of the Box Springs Mountain Reserve Park. The project proposes to develop approx. 16.59 acres of 32.56 acres into 108 detached condominium units with the dwelling units in an 8-unit “cluster” concept. (See **Exhibit B – Development Area**) The remaining 15.97 acres will be rezoned to Open Space (OS). It is anticipated that the open space area will be incorporated into the local trail system of hiking, trail running, and mountain biking trails, and the open space area will be available for recreational use by residents of Gateway Heights and the City of Moreno Valley. The project will also contain 3.1 acres of open space, trails and park area within the community providing residents with space to enjoy. The project proposal is consistent with the City of Moreno Valley’s Residential 10 (R10) District which allows for a maximum density of 10 dwelling units per net acre. In order to ensure the quality and cohesiveness of PUD projects, the City of Moreno Valley requires additional design details during planning stages. The requirement for these design standards and details helps ensure that City design objectives are met. By implementing the following design points, this project meets these City design objectives for PUDs:

- Provides innovation and diversity in housing choices that would not otherwise be possible according to the strict application of the site development regulations in this title because the detached condominium concept provides its residents with the benefits of single-family homeownership while also conferring on them the benefits of shared community living.
- Provides access to adjacent natural resources, open space, onsite recreational facilities through the dedication of nearly one-half of the property to open space that will interconnect with a regional trail system.
- Installation of storm water pollution control systems pursuant to the municipal storm water permit issued by the Regional Water Quality Control Board (RWQCB).

3.0 EXISTING CONDITIONS

The property is currently unimproved land bordered to the south by an existing single family residential development. The site lies just to the east of Interstate 215 and to the north of the US 60/I-215 interchange. The site had previously been entitled for a single-family residential development (Tract 33626) in 2007 but those entitlements expired.

The topography of this site has two naturally defined areas. The lower lying area, which generally contains slopes under 15% and the mountainous area which consists of slopes greater than 25%. The site generally slopes from northeast to southwest (See **Exhibit C – USGS Topographic Map**). The property is located within Flood Zone 'X' (areas determined to be outside of the 100-year and 500-year floodplain) Refer to **Exhibit D – FIRM Map** (Map No. 06065C0733G, dated August 28, 2008).

Per the General Plan, the property currently has land use designations of Residential Max 2DU/AC (R2) and Hillside Residential (HR). (Refer to **Exhibit E – General Plan Map** and **Exhibit F – Zoning Map**)

Transportation corridors and area circulation will be developed in conformance with the City of Moreno Valley's General Plan. Refer to **Exhibit G – Area Circulation Map** for a representation of the major roadways in the areas of the subject site.

4.0 RELATIONSHIP TO SURROUNDING PROPERTIES

The surrounding properties in the area include vacant land, existing single-family homes, and hillside. A majority of the vacant land adjacent to this project are contained within the Gateway Center Specific Plan, in the unincorporated area of Riverside County, to the west of the project. This Specific Plan contains densities from 5du/acre to 16du/acre as well as a school site bordering Morton Road to the west. (See **Exhibit H – Gateway Specific Plan**) To the north and east are areas zoned as Hillside Residential in the City of Moreno Valley and Conservation in the County of Riverside, to the east and south of the project there are eight existing single-family homes. (See **Exhibit I – Surrounding Jurisdictions**)

The surrounding General Plan land use designations are as follows:

- North: Hillside Residential (HR) & Conservation (County of Riverside)
- South: Residential Max. 5du/acre (R5)
- East: Hillside Residential (HR)
- West: Gateway Center Specific Plan (County of Riverside)

The surrounding existing land uses are as follows:

- North: Vacant
- South: Single Family Residences
- East: Vacant
- West: Vacant

5.0 PRELIMINARY DEVELOPMENT PLAN

The Gateway Heights development is intended as a planned residential community offering innovative cluster housing options in the lower lying portion of the site and open space on the remainder of the site. The development will include a community park, open space and a common community design identity. This development plan coupled with the unique location of this property will provide multiple housing alternatives for both entry-level buyers, young families, and retirees, as well as student and faculty for the University of California-Riverside.

As mentioned above, the R10 designated area of Gateway Heights will total 16.59 acres of the 32.56 acre property and will contain 108 units, with a density of 6.51 units per acre. This density is well within allowances of the proposed General Plan designation of R10 (10 units per net acre). The remaining 15.97 acres will be changed to Open Space (OS) and designated for conservation. In addition to the open space, the project will also provide a 0.89 acre community park located in the center of the development. (Refer to **Exhibit J – Open Space/Park Plan**)

The residential uses within the Gateway Heights development will consist of cluster units in varying sizes ranging from 4-unit to 10-unit clusters. This development will be subject to the requirements in Chapter 9.03.040 (Residential Site Development Standards) and 9.03.060 (Planned Unit Developments) of the City of Moreno Valley's municipal code.

5.1 Cluster Design

These units will contain 4-unit to 10-unit auto court product on pad sizes ranging from 7,674SF to 16,254SF. (Refer to **Exhibit K – Cluster Detail**) These cluster units are arranged with garages facing a common driveway as to enhance the aesthetic views of the project from the street and perimeter. The purpose of this design concept is to ensure architectural continuity and compatibility throughout the project utilizing the following design criteria:

- Provide front door access to open space/courtyard for inside units and street access for outside units.
- Provide garage access at common private street
- Use enhanced elevations for homes facing the public street.
- Provide patios or balconies to enhance architectural styles and increase private open space.
- Consider additional building articulation through recessed garage doors, recessing or cantilevering second stories and varying roof pitches.

(Refer to **A-1.3 thru A-3.4 – Conceptual Floor Plans/Elevations**)

5.2 Alternative Design Standards

This planned unit development for the Gateway Heights project contains various design alternatives that differ from the standard R10 design standards in order to promote the objectives stated above in Section 2. As allowed in the City of Moreno Valley’s Municipal Code Section 9.03.060.G, planned unit developments may deviate from the site development standards set forth in the applicable zoning district regarding lot area, lot dimensions, lot coverage, setbacks and building height.

5.2.1 Lot Coverage

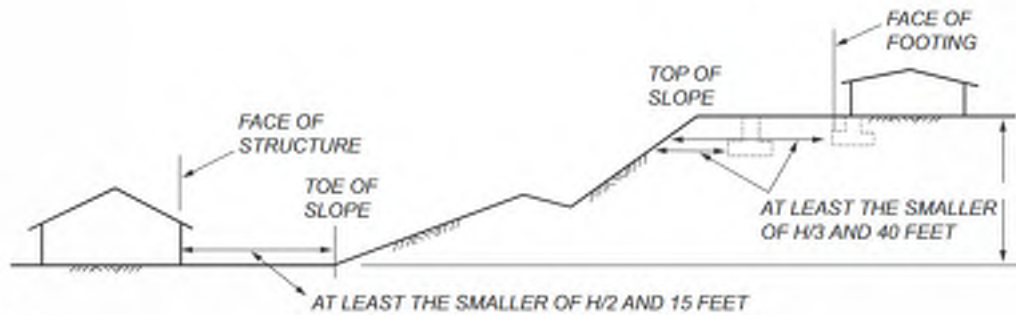
The Gateway Heights project contains 13 development pad areas varying in size from 7,674 to 16,254 square feet. The cluster development will be exclusively contained within these development pads and the pads will have a maximum building coverage of 65%. The remaining pad area shall contain driveways, sidewalks and landscaping.

5.2.2 Building Setbacks

- Front/Street Side setback = 5’ to ROW
- Minimum building separation = 6’
- Side setback to toe/top of slope = 5’ Min*
- Rear setback to toe/top of slope = 5’ Min*

*-For buildings located at the top or toe of slope, the minimum building setback shall be determined by the California Building Code Section 1808.7 which states that buildings at the toe of slope shall be at least the smaller of H/2 or 15’ from the toe of slope. Buildings at the top of slope shall be at least the smaller of H/3 or 40’ from the top of slope.

- Example: 20’ Slope Height = 10’ setback at toe of slope (20/2)
- 20’ Slope Height = 7’ setback at top of slope (20/3)



For SI: 1 foot = 304.8 mm.

FIGURE 1808.7.1 FOUNDATION CLEARANCES FROM SLOPES

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

5.2.3 Building Height

Building heights for the two story units will not exceed 30' in height.

5.2.4 Street Sections

The streets within the Gateway Heights PUD will be private streets maintained by the project's Homeowner Association. These streets will be constructed based on the City of Moreno Valley's Local Street section MVSI-107A-0. Street A and Street C will be constructed using a modified section which eliminates the sidewalk and landscape area along the project perimeter. The purpose for these modified sections is to preserve the natural landscape along the perimeter of the project. With the elimination of these sidewalks, a pedestrian crossing has been located at approximately mid-block of Street B to provide ADA access to the units on the north side of Street B. (Refer to **Exhibit L – Street Section Details**)

TABLE 1

GATEWAY HEIGHTS DEVELOPMENT STANDARDS	
Max Building Height	30'
Min Front/Street Setback	5'
Min Bldg seperation	6'
Min. Side setbacks	5'*
Min. Rear setbacks	5'*
Max Development Pad Coverage	65%

5.3 Fire Protection Plan

The Gateway Heights project has developed a Fire Protection Plan in conjunction with the development to increase safety measures and mitigate any fire hazards for the project. The mitigations include providing two 36'+ wide roadways at the entrance to minimize any potential traffic congestion during an emergency setting. One roadway would be used for ingress and the other for egress. The site also includes an internal looped road system allowing traffic circulation in either direction. Direct access shall be provided to all structures and no dead-end fire apparatus access roads are contained onsite. The project has also developed a Fuel Modification and Vegetation Management plan for the site which includes requirements for landscape materials to reduce non-fire-resistant vegetation.

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

5.4 Community Park & Landscape Buffers

This project will contain a community park space area, approximately 0.89 acres in size and with various elements for recreation. This community park will be located near the center to the subdivision allowing easy access to all residents and turf areas for additional gathering and activities. The park will be owned and maintained by the project's Homeowners Association. In addition to the community park, this project will also incorporate landscaped buffer areas throughout the project and along the project's perimeter. These landscape areas will also be maintained by the Homeowners Association.

5.4.1 General Guidelines

- All landscape shall conform to Ordinance No. 859.2 and County of Riverside Guide to California Friendly Landscaping.
- All planting areas shall be irrigated with an automatic irrigation system and an ET based controller, per Ordinance 859.2.
- All planting areas shall receive three inches (3") of shredded bark mulch and one and a half inches (1-1/2") on ground cover from flats.
- All trees within six feet (6') of any hardscape shall receive thirty-six inch (36") deep, by twenty inch (20") long linear root barrier.
- All slopes three feet (3') in vertical height or greater shall be planted with shrubs and trees and irrigated per the Riverside County requirements for slope erosion control landscaping. Slopes to meet building and safety requirements.
- Landscaping shall consist of a combination of trees, shrubs and groundcover as listed in the California Friendly Plant List provided by the County.

5.5 Entry Monuments, Walls & Project Theme

The primary entry for the community will be located at the intersection of "Street A" and Morton Road. The elevated topography of the Gateway Heights project will make it a predominant development near the I-215 freeway. As such, it is important to minimize the walls and fences that could impact the views from the street or surrounding areas. The Gateway Heights project will contain no walls on the interior of the project. The perimeter of the project will consist of decorative view walls and/ or tubular steel fencing. Perimeter wall and fence materials, designs, and colors will carry on the project's theme established by the project's monument signage and landscaping. Wall and fence heights will be limited to a maximum height of six (6) feet, except where necessary for noise attenuation or additional retaining wall. Decorative pillars and pedestals may extend up to an additional fourteen (14) inches above the maximum wall or fence heights. (Refer to **Exhibit M – Conceptual Wall & Fence Plan**) Materials, colors, and construction methods for theme, view and accent walls are subject to some variation, so long as the proposed character and theme of the walls is preserved and per the approval of the Planning Department.

While in some areas of the development, units may have retaining walls the majority of the development will not be separated by neighborhood walls at the rear or side yards.

5.5.1 General Guidelines

- All walls and fences should maintain a six foot (6') maximum height limit, except where larger walls are necessary for noise attenuation or retaining purposes.
- If walls or fences end in a pilaster, the design of the pilaster should reflect the shape of the supports used in the entry monuments and use similar materials.
- When changes in pad elevation occur, the wall or fence should be stepped in equal vertical intervals.
- Where gates are required, they shall be constructed of wrought iron, vinyl or tubular steel. Chain link fencing is not permitted. All construction must be of good quality and sufficient durability. (Applicants shall provide specifications which shall be approved by the Planning Department)
- All wall and fence plans and materials must conform to City of Moreno Valley guidelines.

5.6 Perimeter Yard Landscaping

Perimeter yard landscaping is required around all cluster pads and unless approved by the Planning Department, will be provided by the developer/home builder. Perimeter yard landscaping provided by the developer/builder or their representative must be installed within one month of closing of the first unit. A variety of perimeter yard landscape packages with automatic irrigation systems shall be provided; landscaping designs with berming, river run features, courtyards, lighting, or other creative features shall be offered for standard landscape design.

5.7 Private Open Space

Private Open Space may include land within each residential unit that is available for private use. This private open space is typically considered yard, patio or balcony area that is available for private recreation. It is recognized that while the community park provides an easily accessible active recreational opportunity for all residents of the development, each residence must have adequate private outdoor space that can be an effective extension of the indoor living space and be used for passive outdoor activities such as gardening, reading, eating and barbequing. Per Moreno Valley Municipal Code Section 9.03.040.G.8, each unit shall have at least one hundred and fifty (150) square feet of private open space.

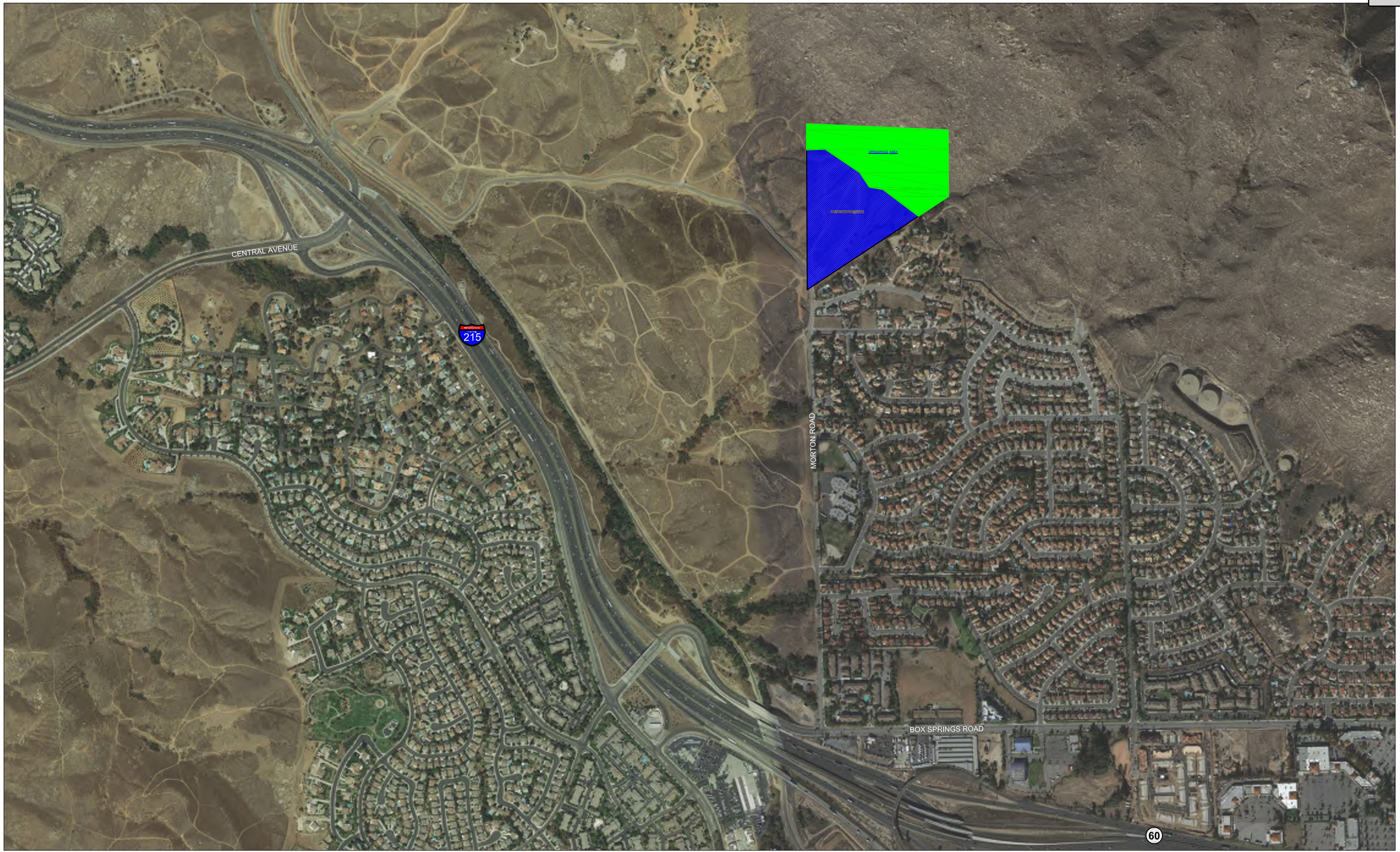
This open space may be achieved through the use of patio or balcony spaces. First floor patio space shall have a minimum dimension of 8' and upstairs balconies must have a minimum dimension of 5'. Patio designs may include alternatives to traditional fencing, such as garden walls, small retaining walls or landscaping which delineates the space between units.



Figure 1 - Galvanized steel rock garden wall

EXHIBITS


Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



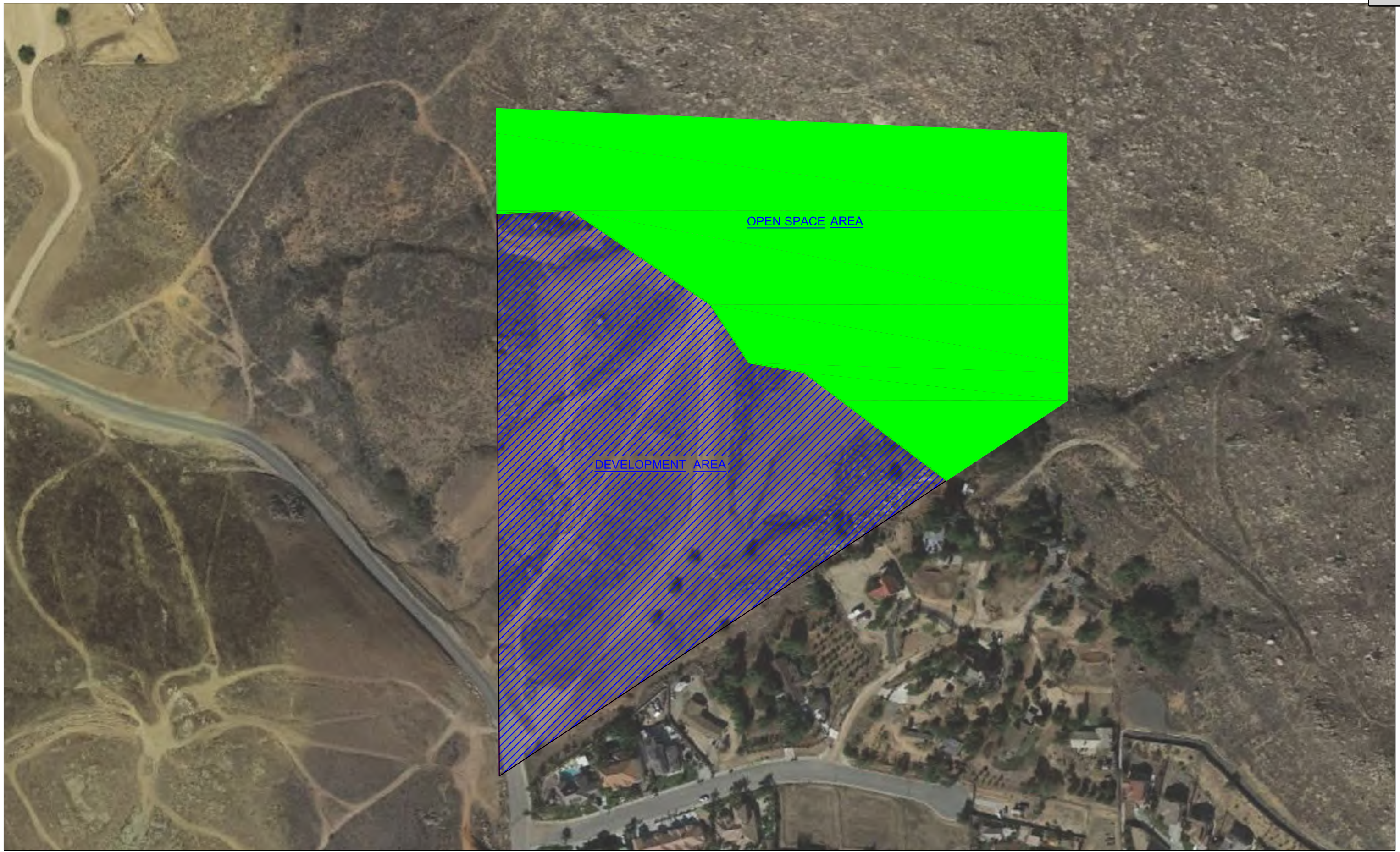
Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

VICINITY MAP
GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

NOT TO SCALE 





DEVELOPMENT AREA

GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

NOT TO SCALE 





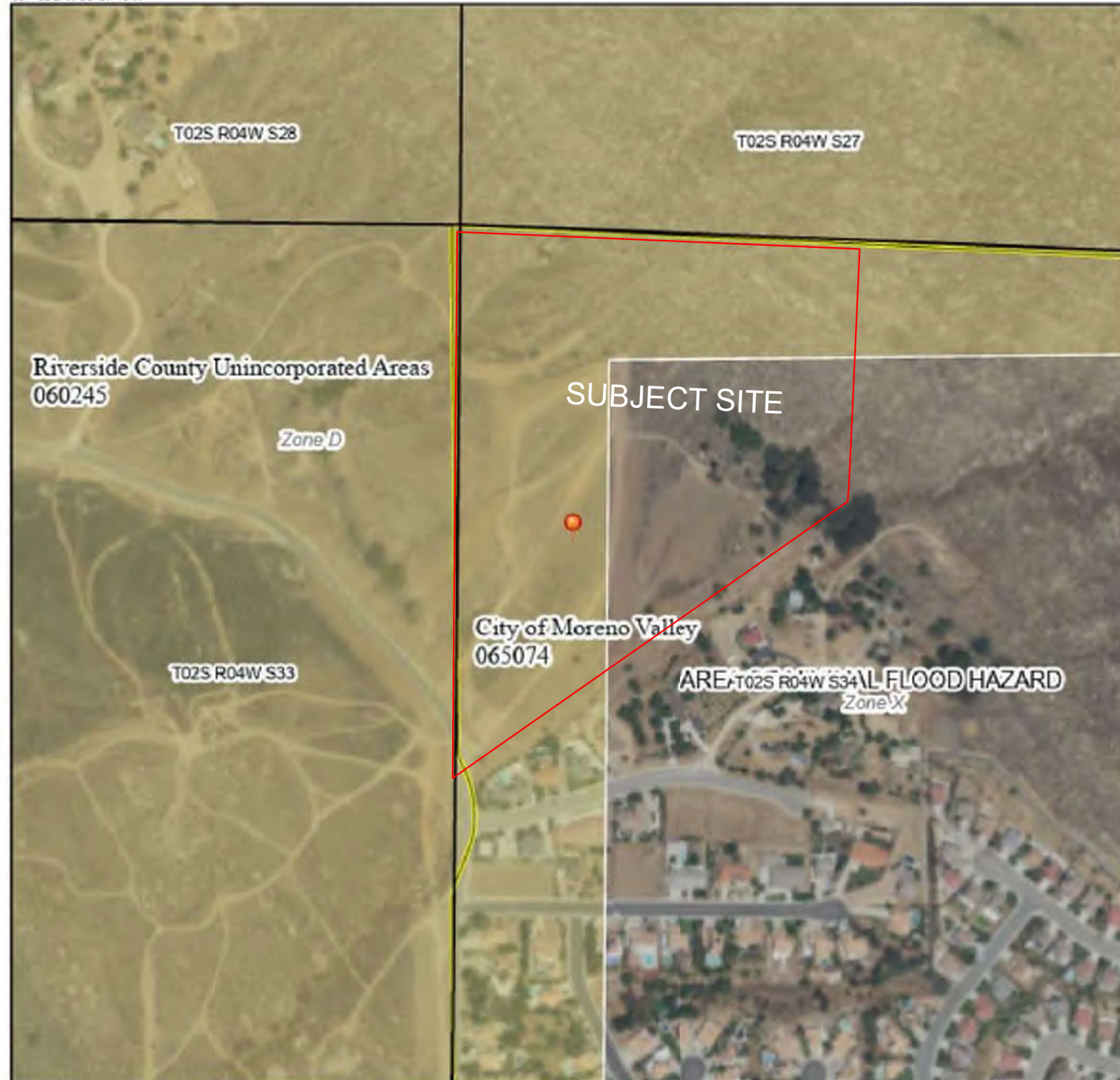
Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



National Flood Hazard Layer FIRMette



117°18'2"W 33°57'46"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000
 Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020
 117°17'25"W 33°57'16"N

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS**
 - Without Base Flood Elevation (BFE) Zone A, V, A99
 - With BFE or Depth Zone AE, AO, AH, VE, AR
 - Regulatory Floodway
 - OTHER AREAS OF FLOOD HAZARD**
 - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
 - Future Conditions 1% Annual Chance Flood Hazard Zone X
 - Area with Reduced Flood Risk due to Levee. See Notes. Zone X
 - Area with Flood Risk due to Levee Zone D
 - OTHER AREAS**
 - NO SCREEN Area of Minimal Flood Hazard Zone X
 - Effective LOMRs
 - Area of Undetermined Flood Hazard Zone D
 - GENERAL STRUCTURES**
 - Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Floodwall
 - OTHER FEATURES**
 - 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
 - 17.8 Coastal Transect
 - Base Flood Elevation Line (BFE)
 - Limit of Study
 - Jurisdiction Boundary
 - Coastal Transect Baseline
 - Profile Baseline
 - Hydrographic Feature
 - MAP PANELS**
 - Digital Data Available
 - No Digital Data Available
 - Unmapped
- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/22/2021 at 11:51 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

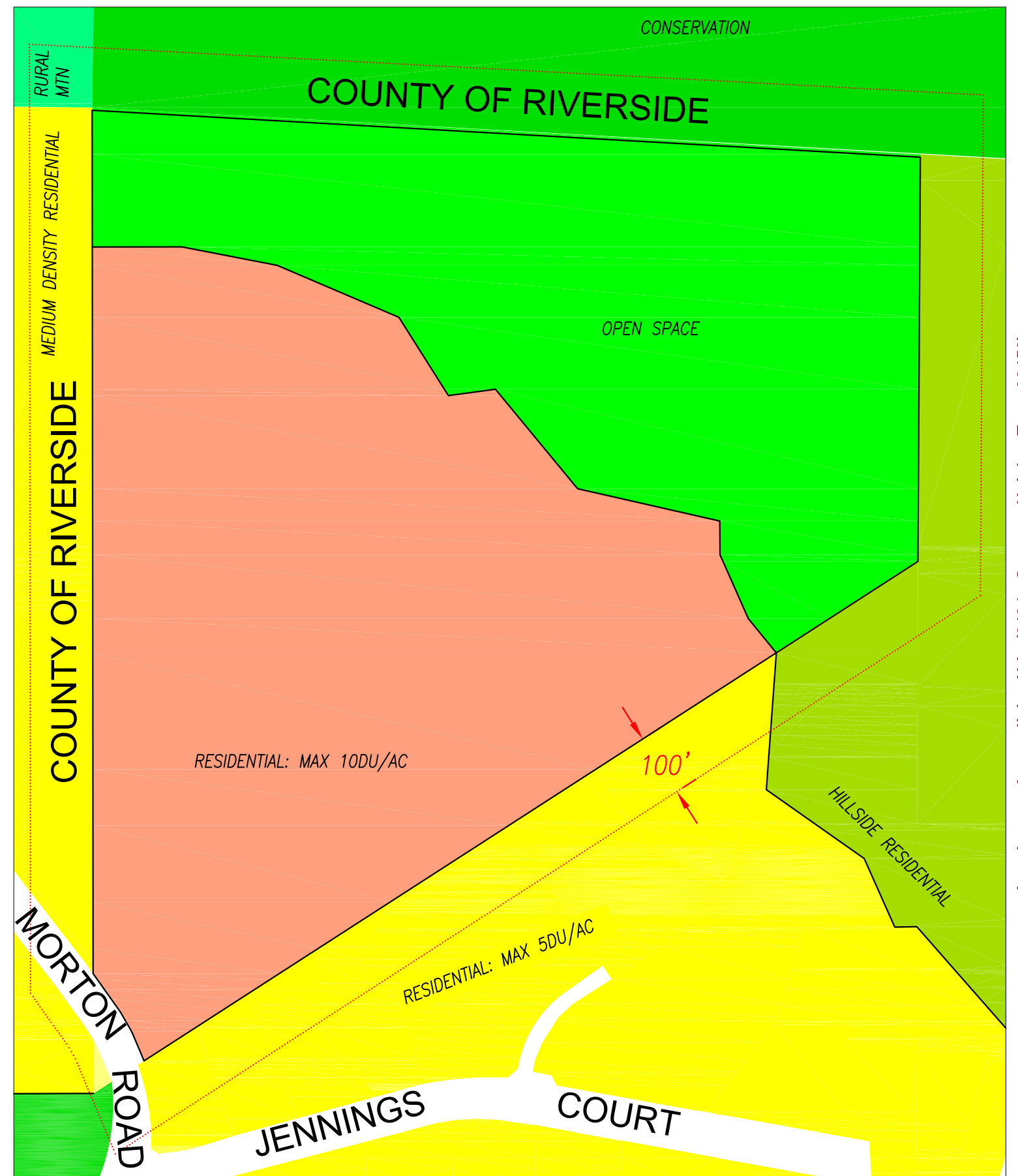
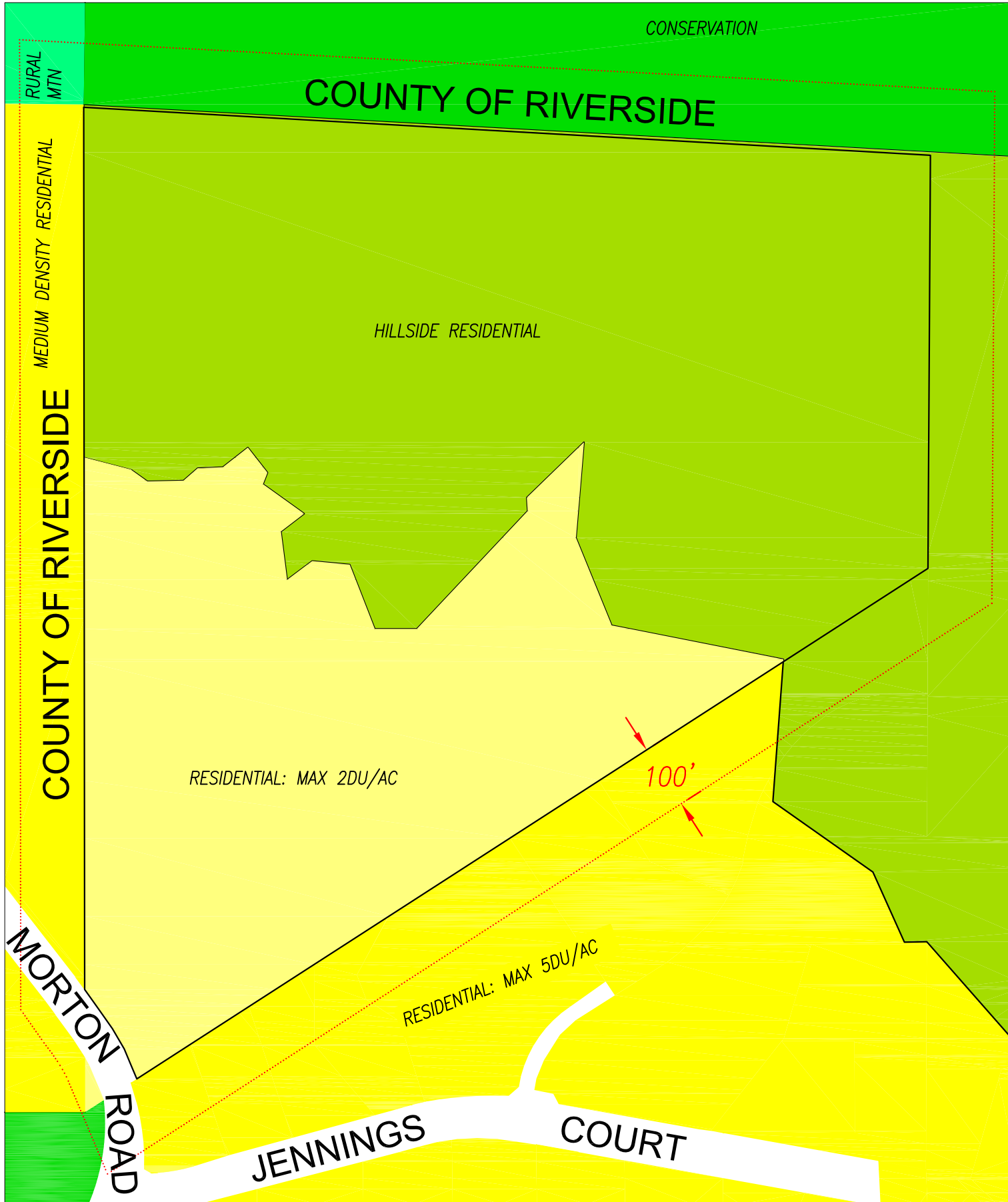
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



EXISTING GENERAL PLAN

PROPOSED GENERAL PLAN



GENERAL PLAN MAP

GATEWAY HEIGHTS

CITY OF MORENO VALLEY, CALIFORNIA

SCALE: 1" = 200'



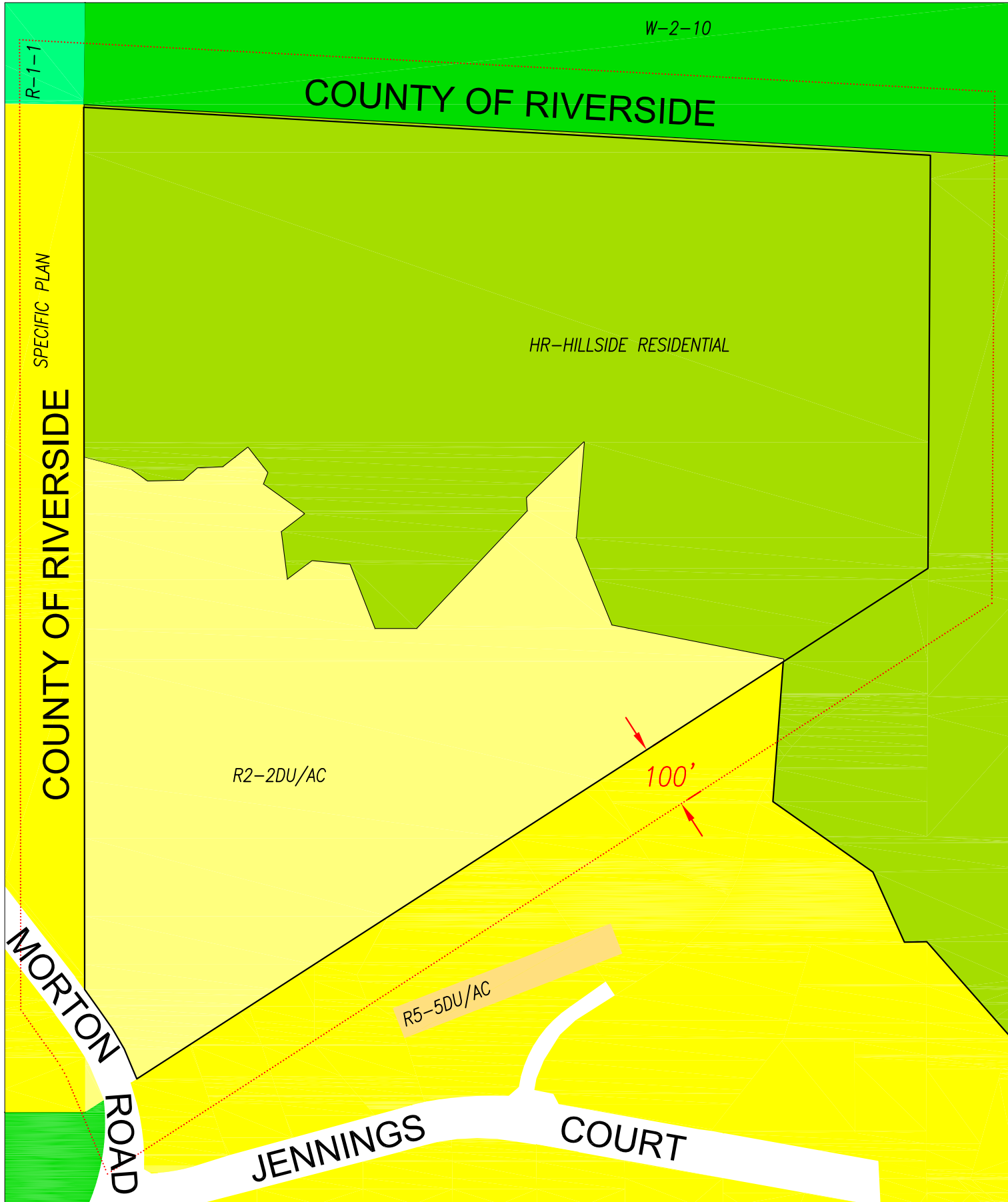
united engineering group

Packet Pg. 1812

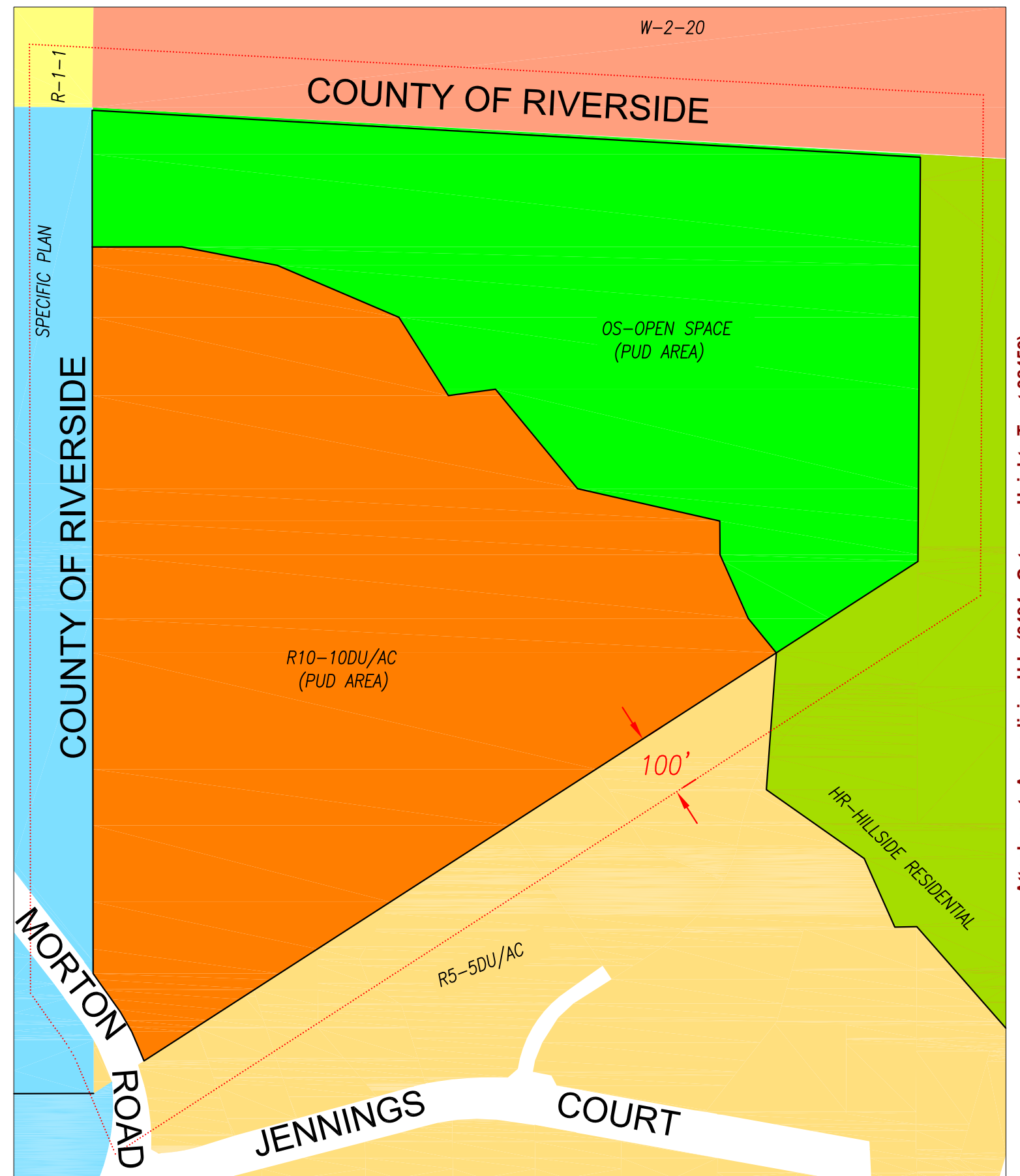
EXHIBIT E

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

EXISTING ZONING

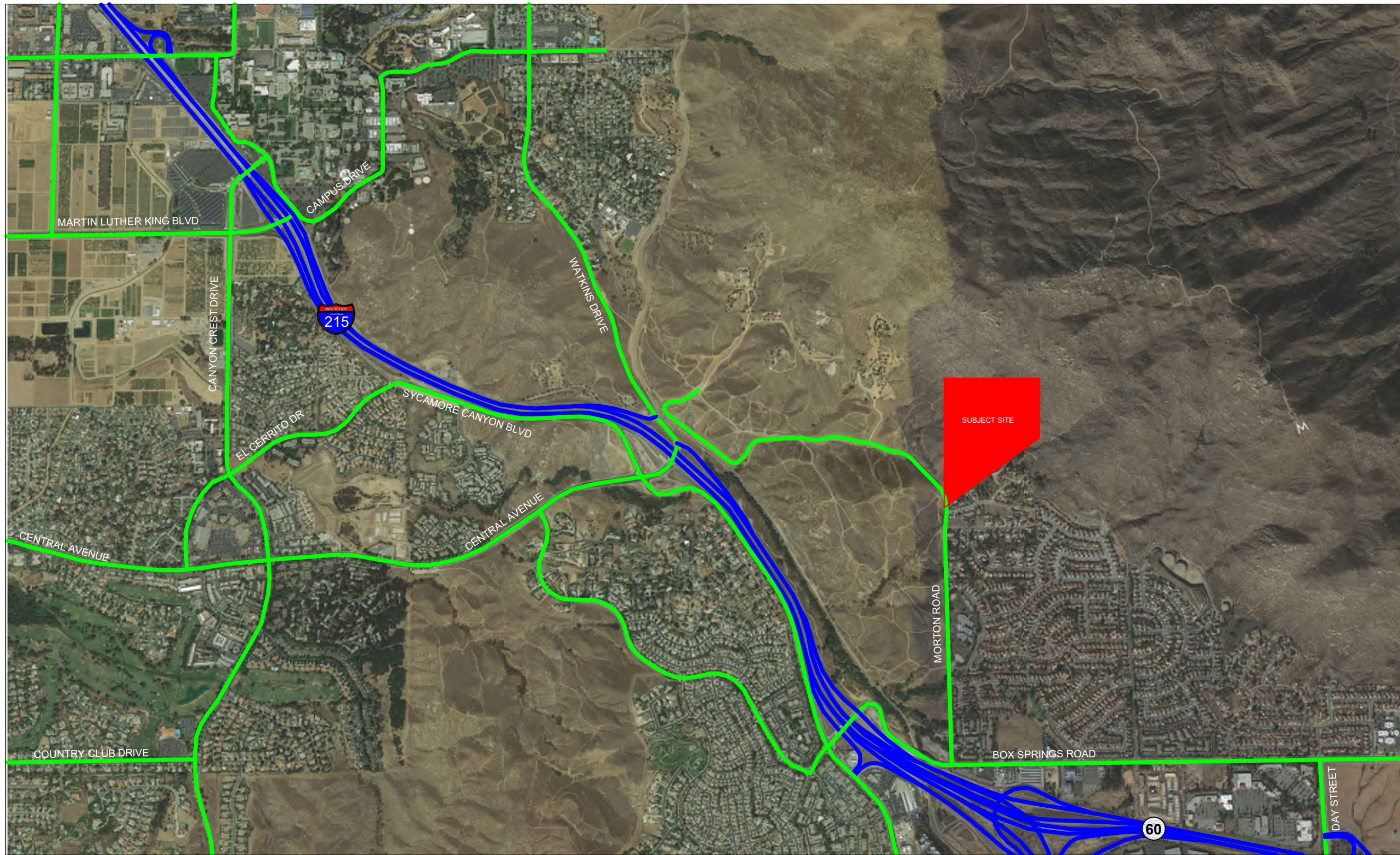


PROPOSED ZONING



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)





Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

CIRCULATION MAP
GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

NOT TO SCALE



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EXHIBIT G



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

GATEWAY CENTER SPECIFIC PLAN
GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

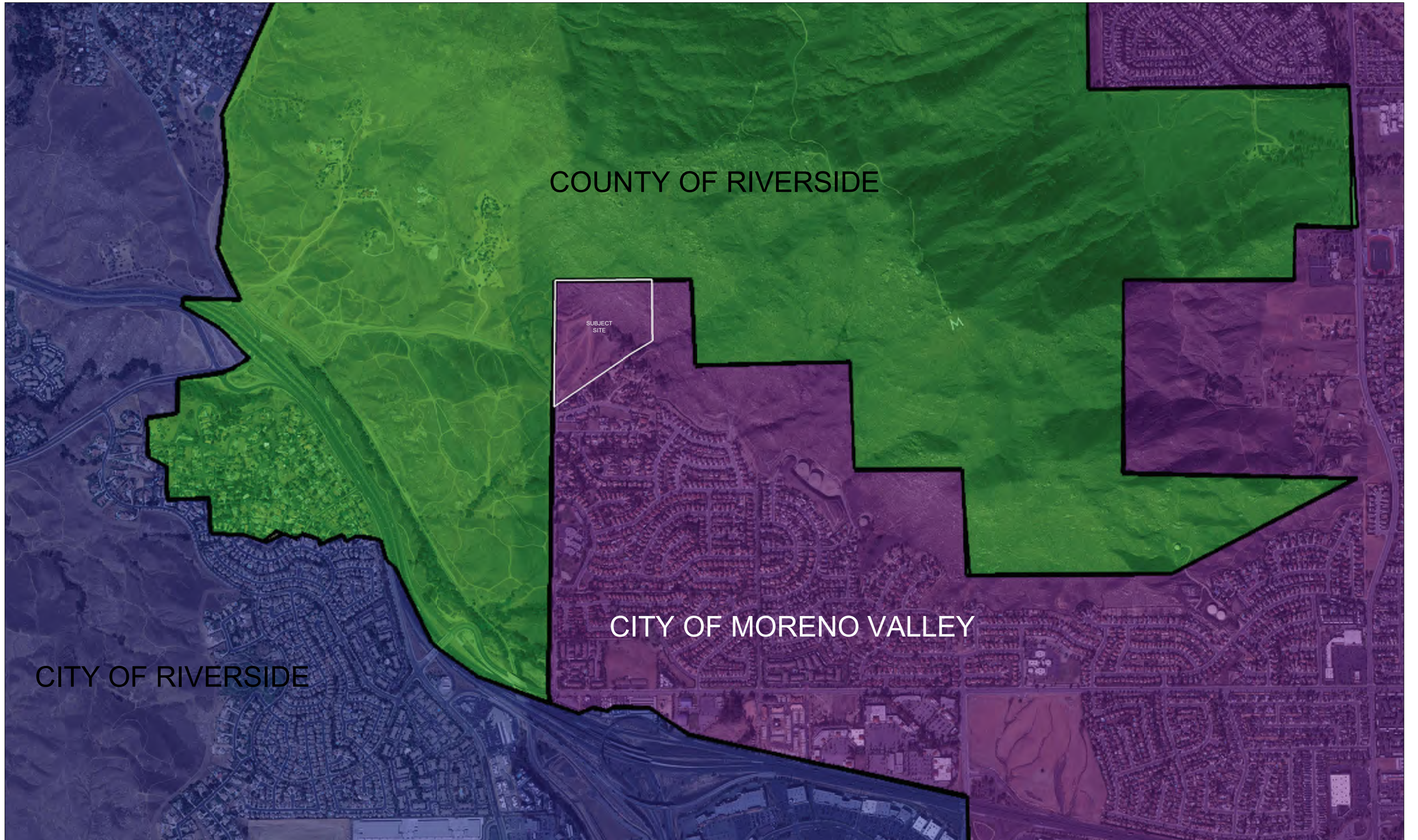
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EXHIBIT II



COUNTY OF RIVERSIDE

SUBJECT SITE

CITY OF MORENO VALLEY

CITY OF RIVERSIDE

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

SURROUNDING JURISDICTIONS

GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

NOT TO SCALE



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EXHIBIT I



OPEN SPACE/PARK PLAN
GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

NOT TO SCALE



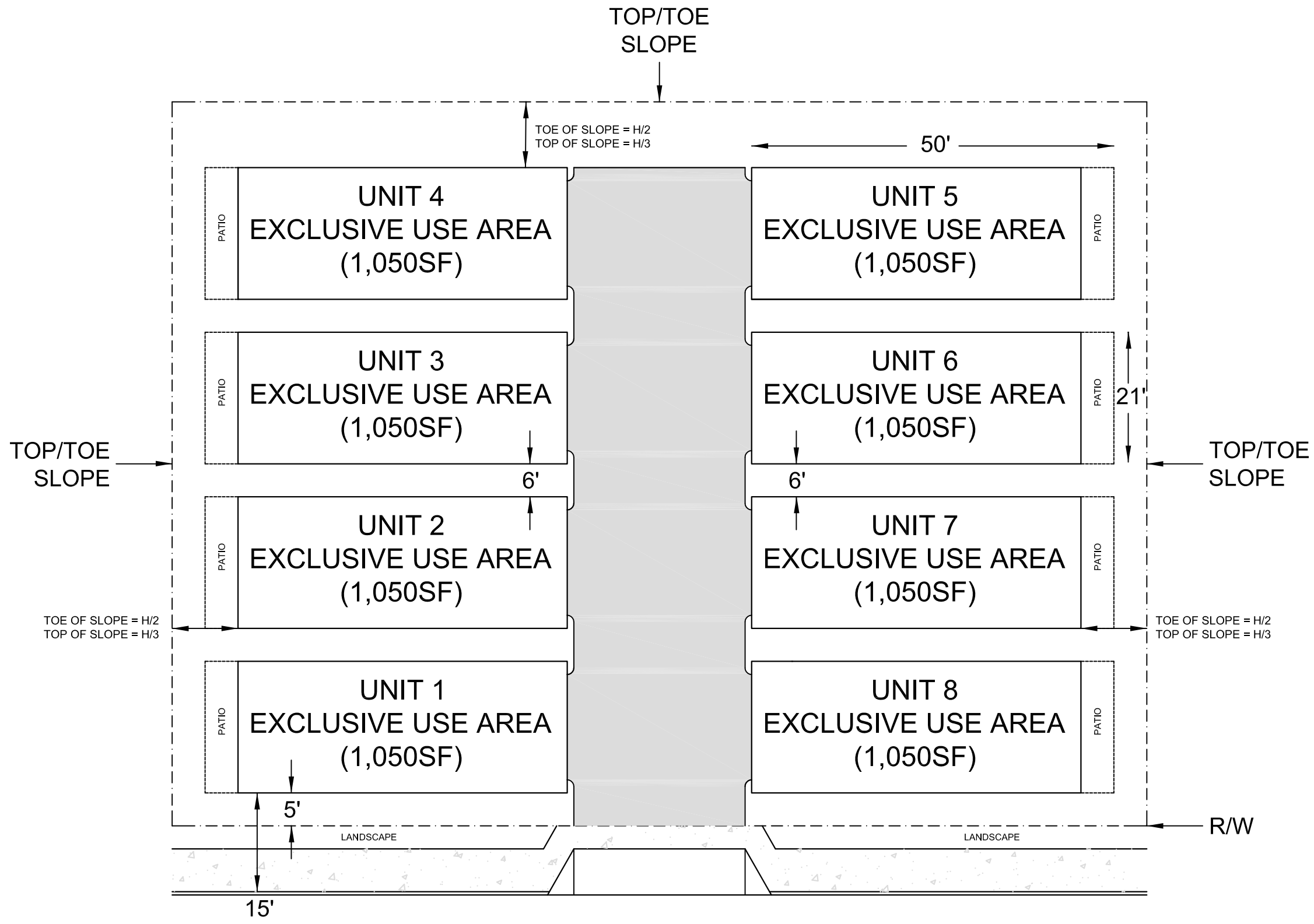
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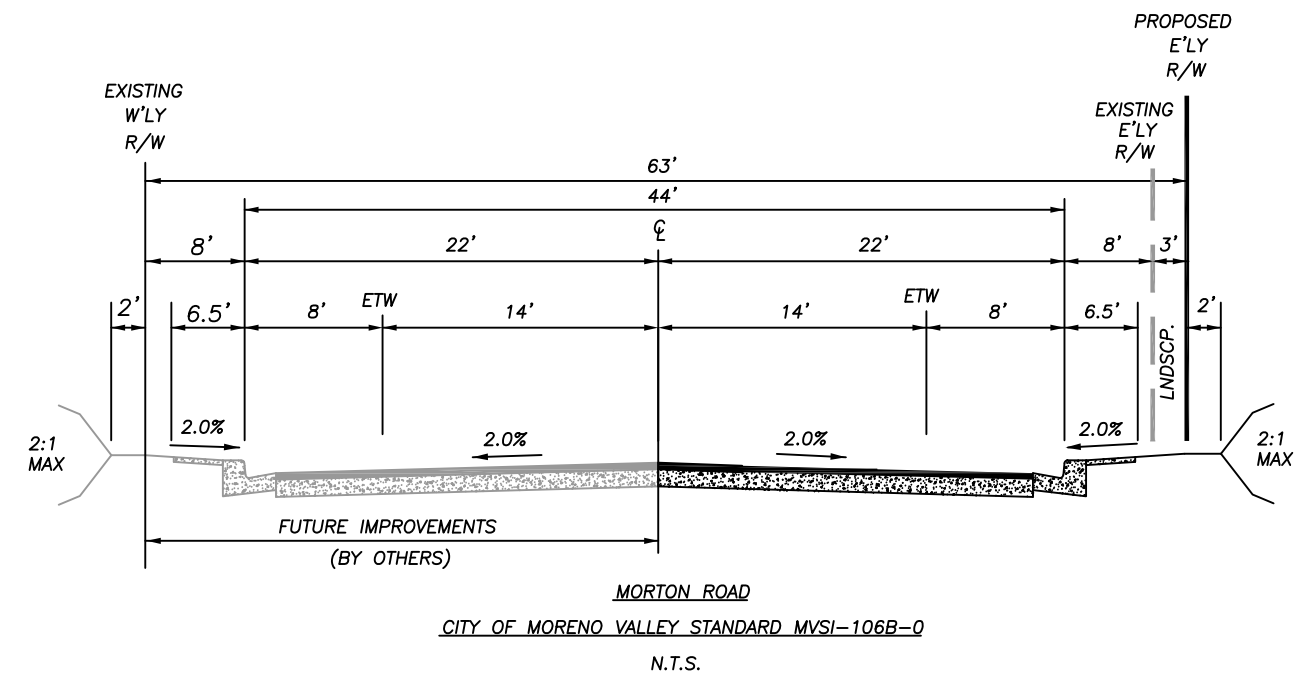
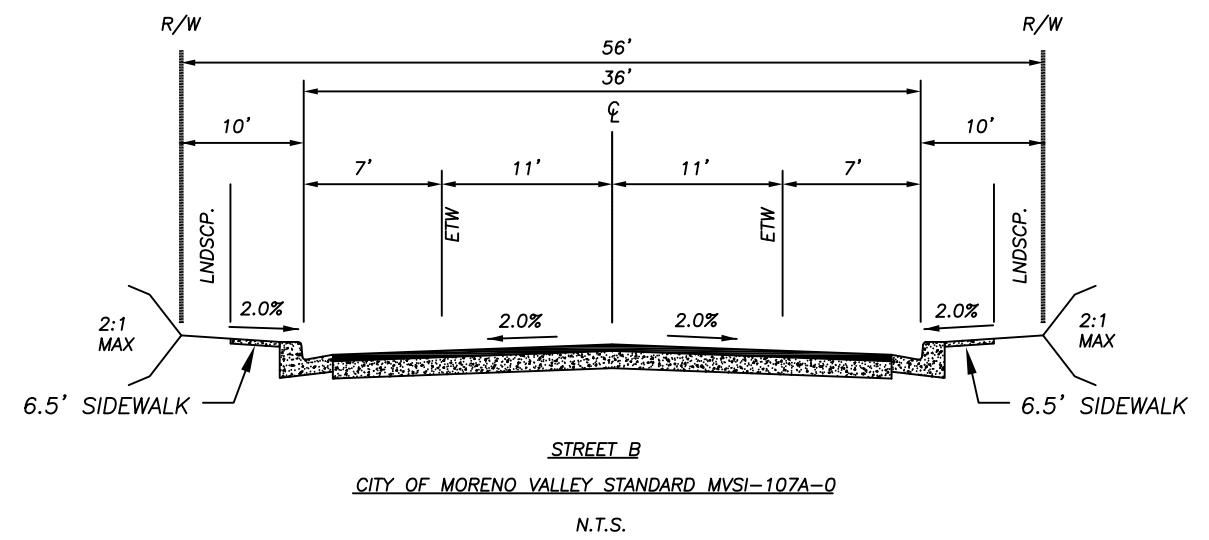
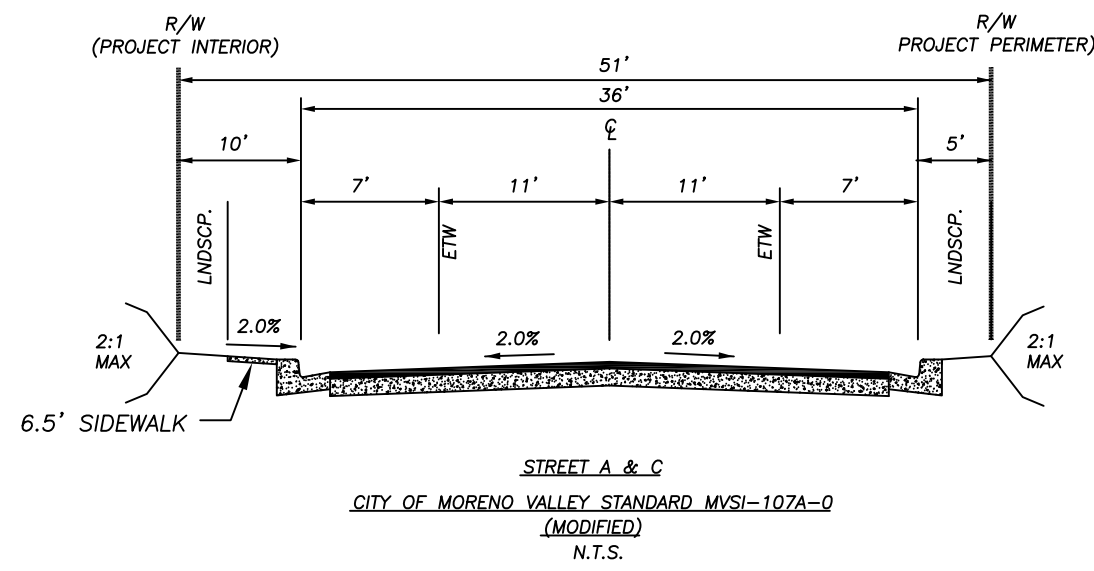
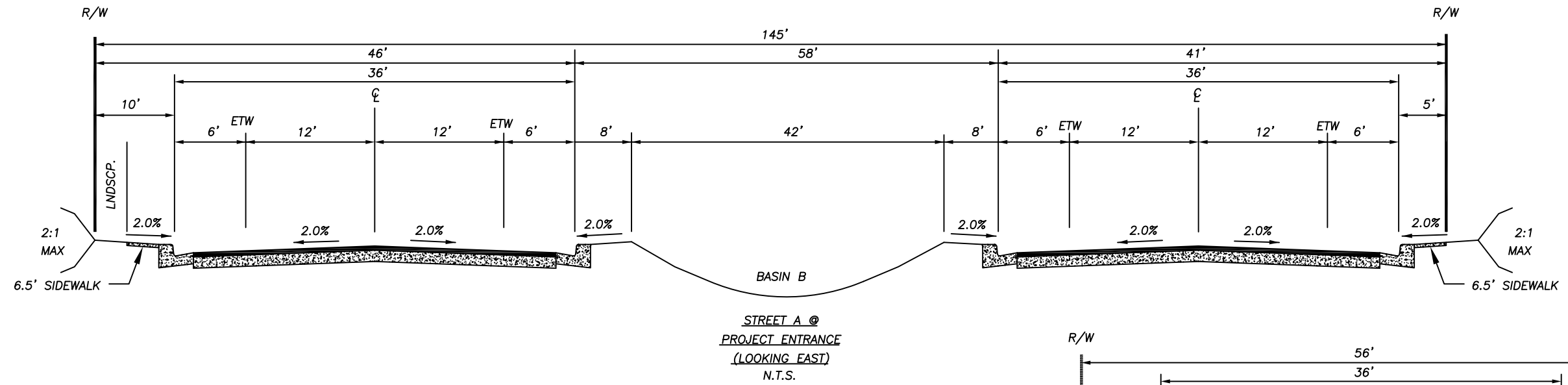
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EXHIBIT J

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

TYPICAL CLUSTER DETAIL



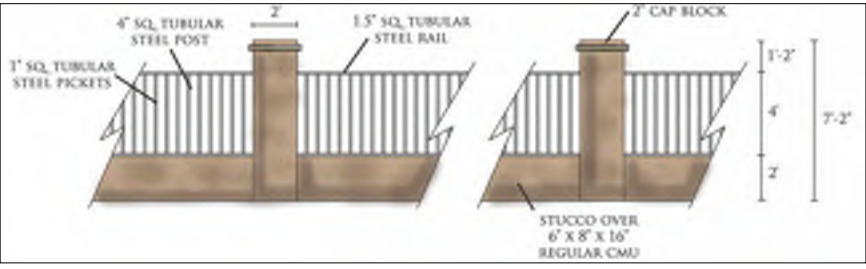




CONCEPTUAL WALL / FENCE PLAN

GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA



VIEW FENCE DETAIL



ENTRY FEATURE DETAIL

NOT TO SCALE



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Packet Pg. 1820

EXHIBIT M

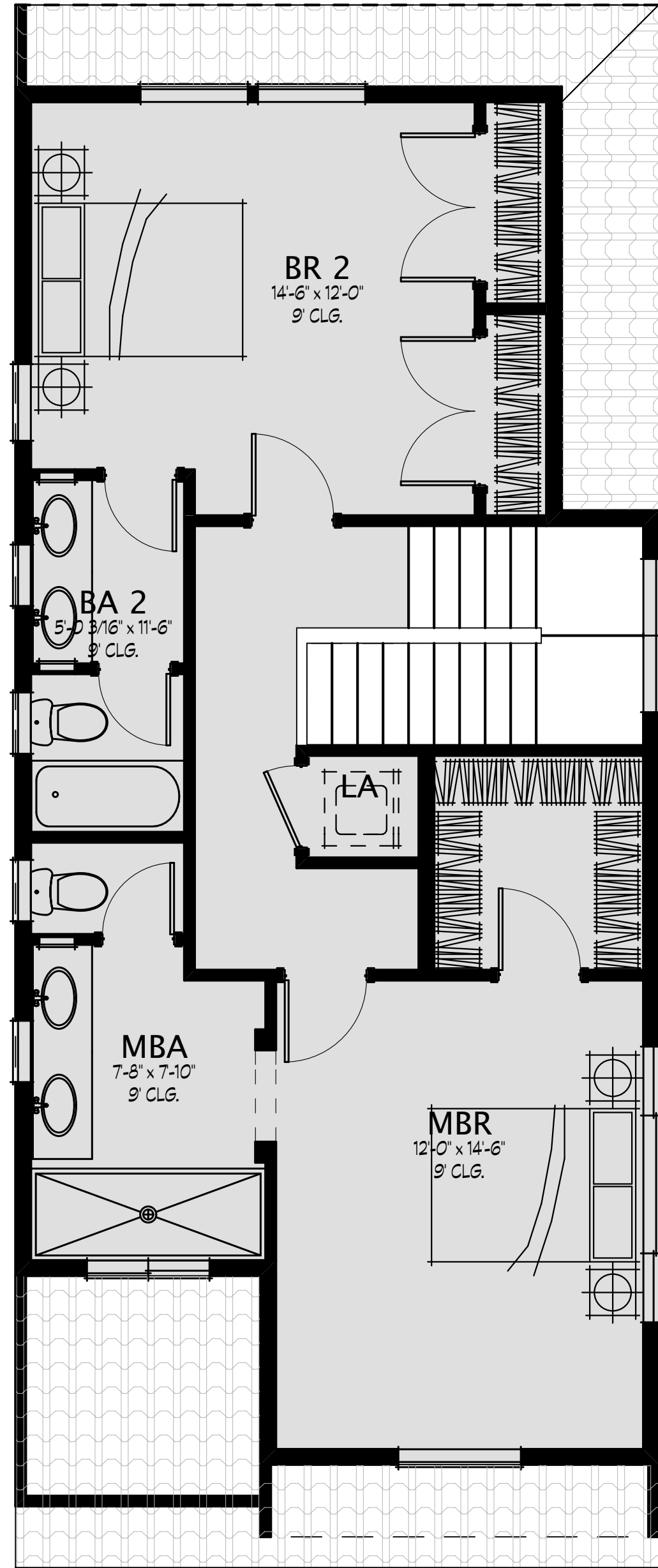
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FLOOR PLANS/ELEVATIONS

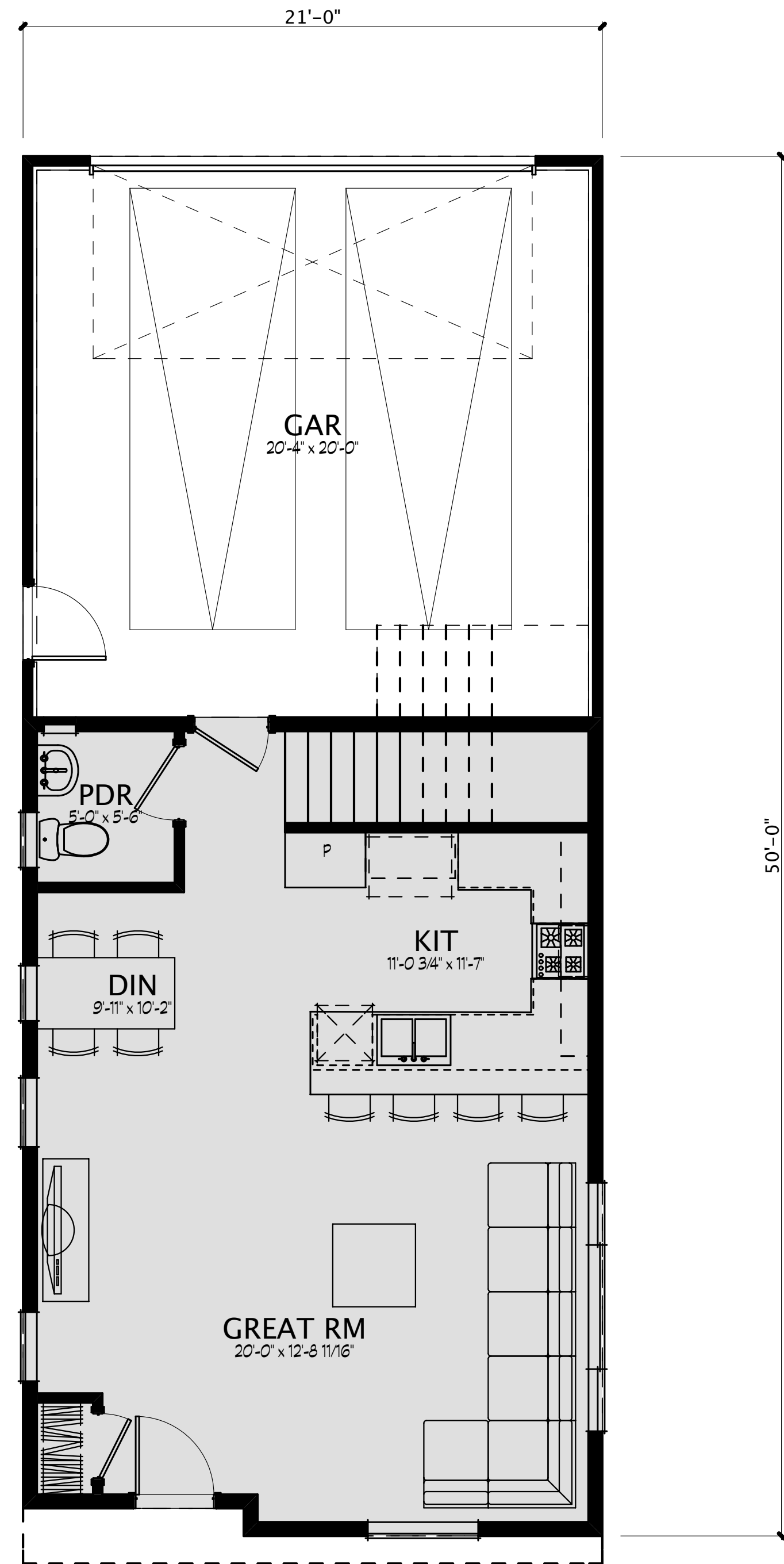
Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

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1 PLAN 1 SECOND FLOOR 785 sq ft



1 PLAN 1 FIRST FLOOR 615 sq ft
 2 BEDROOM, 2.5 BATHS TOTAL 1400 sq ft

Henghou Group
 177 E. Colorado BLVD, Ste. 200
 Pasadena, CA 91105

Gateway Heights
 Moreno Valley, USA

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M
DRAWN BY:	SJ
SHEET ISSUE DATE:	5/3
SHEET TITLE	

PLAN 1A
 (PLAN 1B SIM)

SHEET NUMBER
A-1.1

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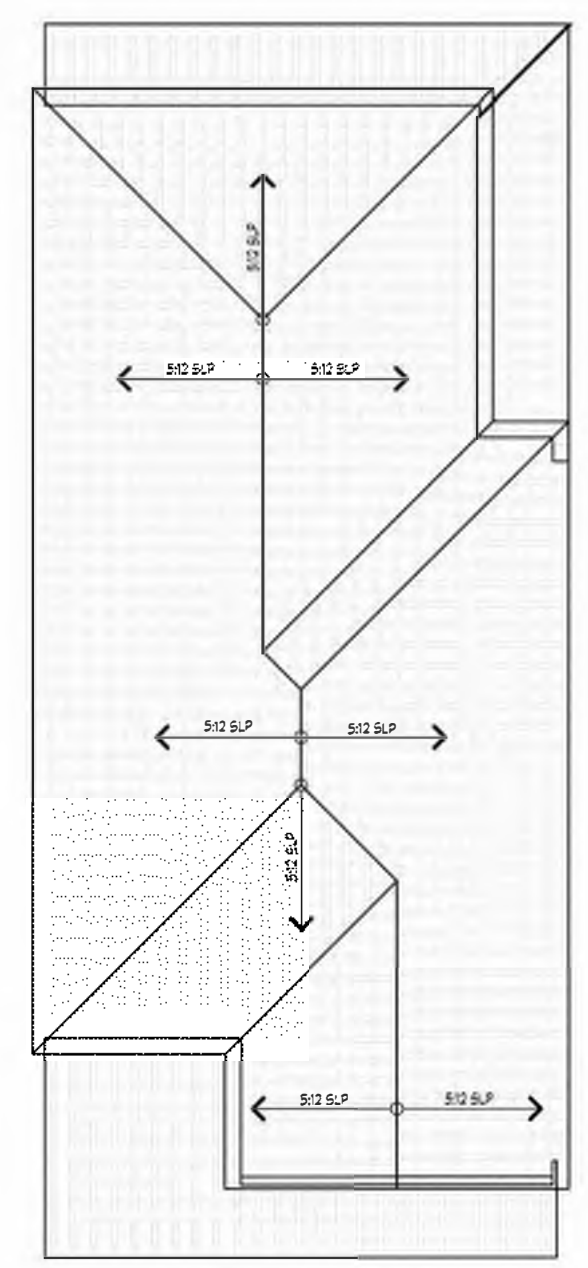
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1 PLAN 1A RIGHT ELEVATION



1 PLAN 1A REAR ELEVATION



1 ROOF PLAN 1 A



1 PLAN 1A LEFT ELEVATION



1 PLAN 1A FRONT ELEVATION

Henghou Group
 177 E. Colorado BLVD, Ste. 200
 Pasadena, CA 91105

Gateway Heights
 Moreno Valley, USA

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M.
DRAWN BY:	SJ
SHEET ISSUE DATE:	3/10/23

SHEET TITLE
PLAN 1 EXTERIOR A

SHEET NUMBER
A-1.2

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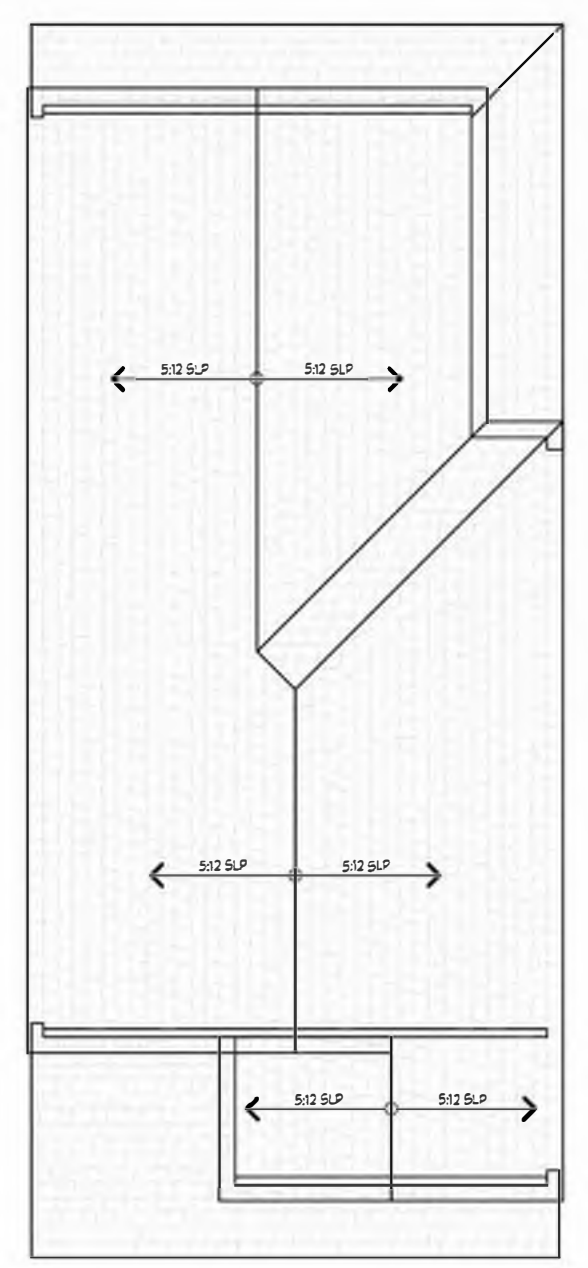
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1 PLAN 1B RIGHT ELEVATION



1 PLAN 1B REAR ELEVATION



1 ROOF PLAN 1B



1 PLAN 1B LEFT ELEVATION



1 PLAN 1B FRONT ELEVATION

Henghou Group
 177 E. Colorado BLVD, Ste. 200
 Pasadena, CA 91105

Gateway Heights
 Moreno Valley, USA

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M.
DRAWN BY:	SJ
SHEET ISSUE DATE:	3/10/21

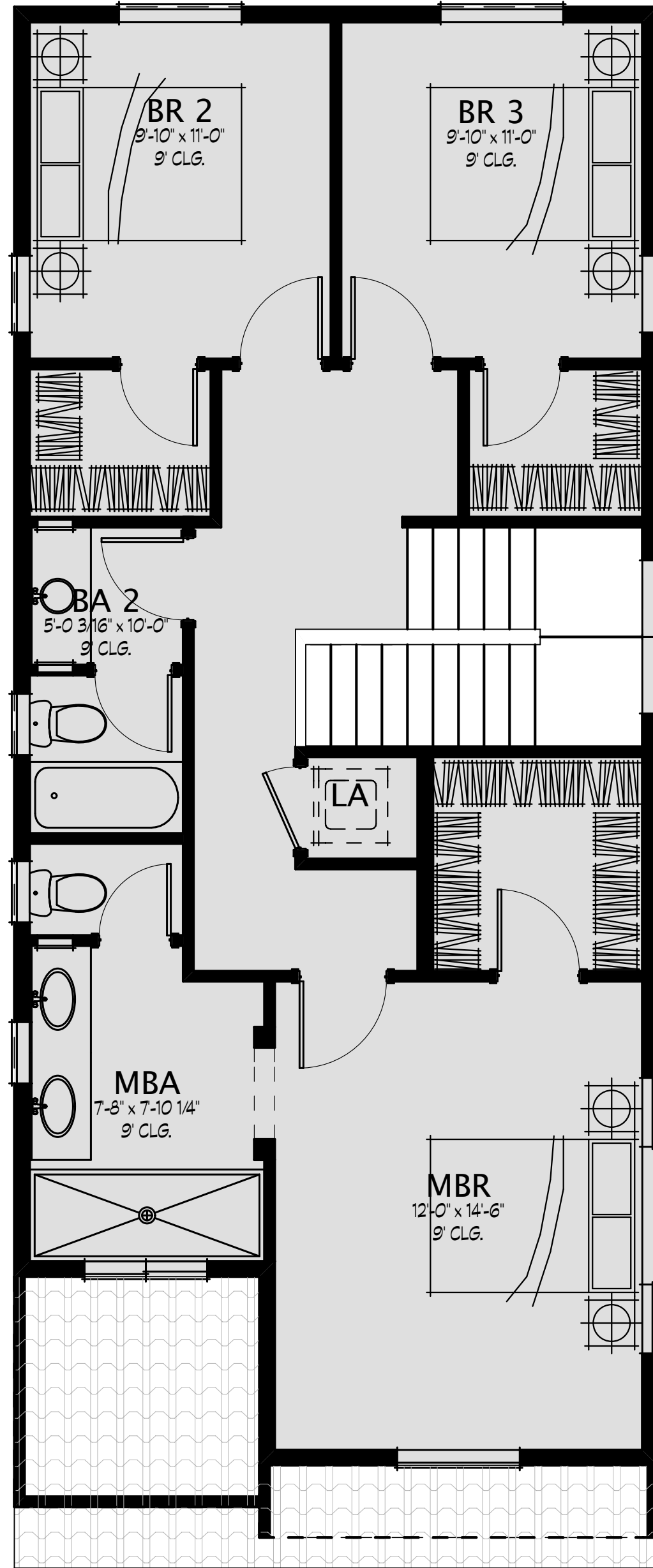
SHEET TITLE

PLAN 1 EXTERIOR B

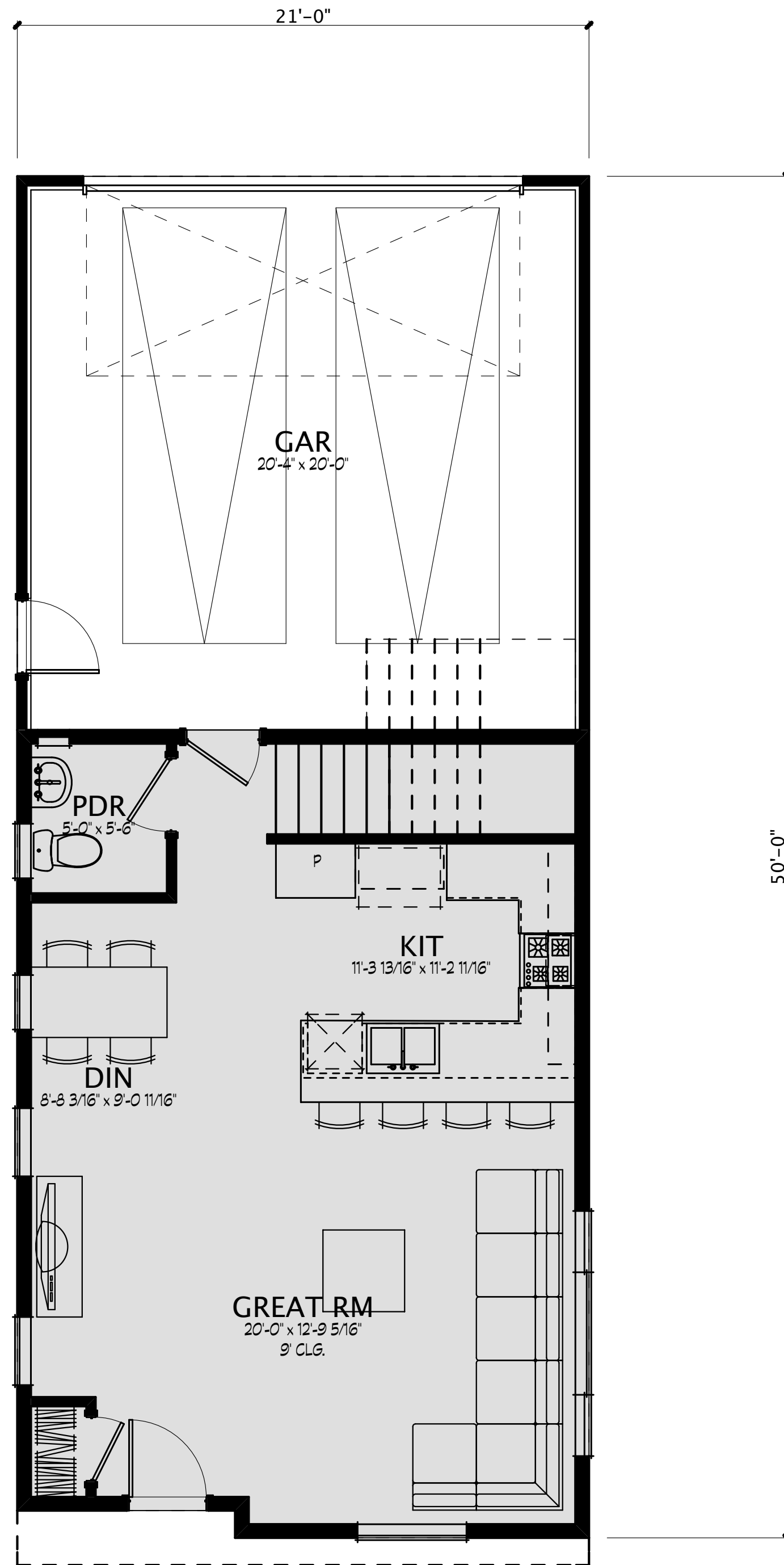
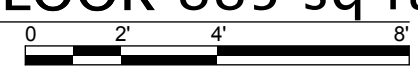
SHEET NUMBER
A-1.3

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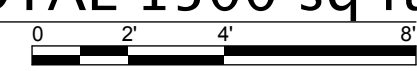
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2 PLAN 2 SECOND FLOOR 885 sq ft



2 PLAN 2 FIRST FLOOR 615 sq ft
 3 BEDROOM, 2.5 BATHS
 TOTAL 1500 sq ft



Henghou Group
 177 E. Colorado BLVD Ste. 200
 Pasadena, CA 91105

Gateway Heights
 Moreno Valley, USA

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M
DRAWN BY:	SJ
SHEET ISSUE DATE:	5/3

SHEET TITLE

PLAN 2A
 (PLAN 2B SIM)

SHEET NUMBER
A-2.1

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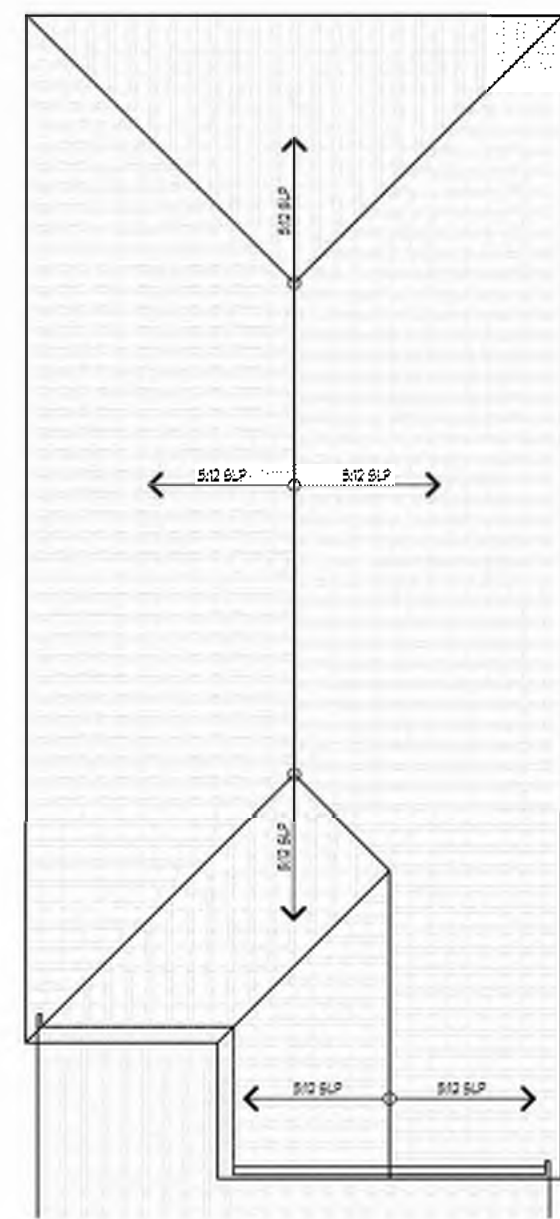
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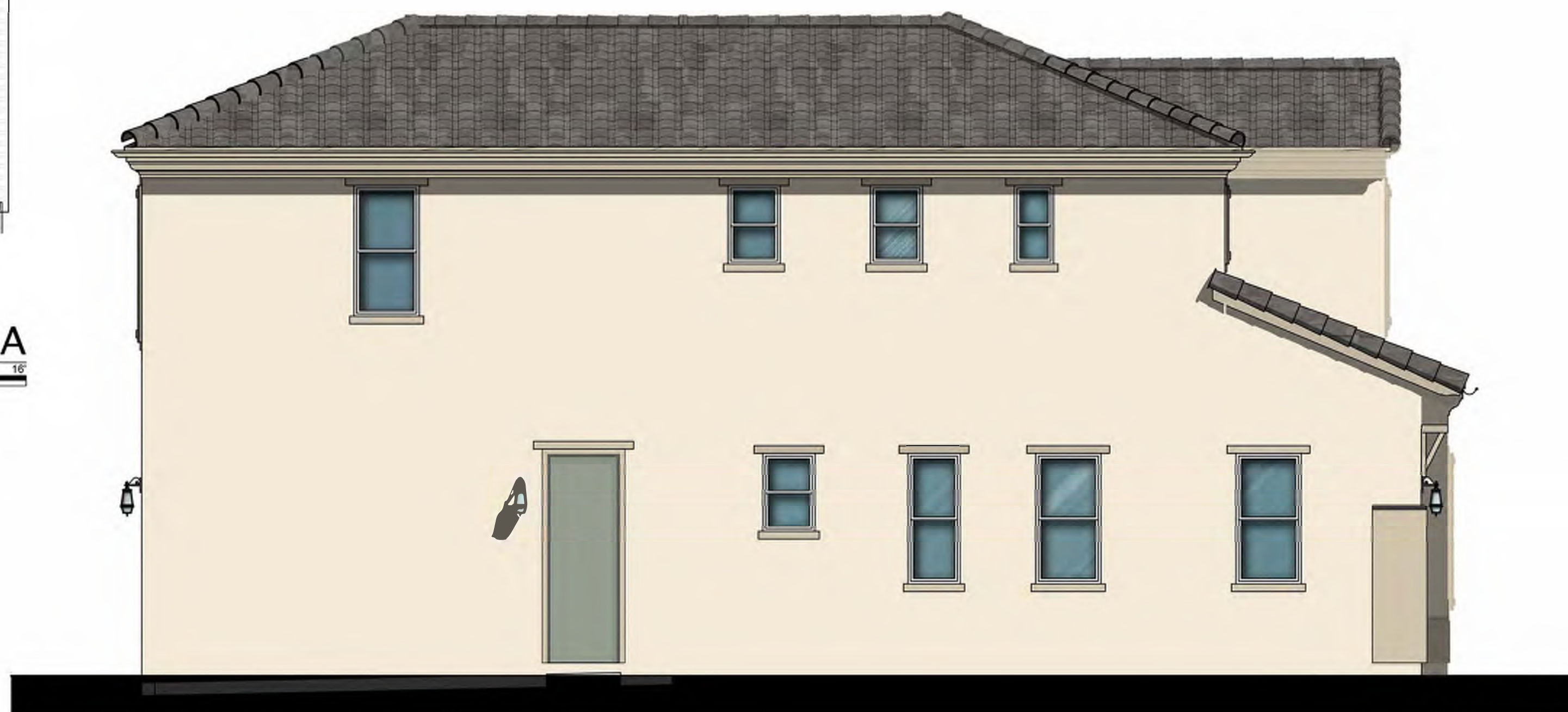
2 PLAN 2A RIGHT ELEVATION



2 PLAN 2A REAR ELEVATION



2 ROOF PLAN 2A



2 PLAN 2A LEFT ELEVATION



2 PLAN 2A FRONT ELEVATION

Henghou Group
 177 E. Colorado BLVD Ste. 200
 Pasadena, CA 91105

Gateway Heights
 Moreno Valley, USA

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M.
DRAWN BY:	SJ
SHEET ISSUE DATE:	3/10/21

SHEET TITLE

PLAN 2 EXTERIOR A

SHEET NUMBER
A-2.2

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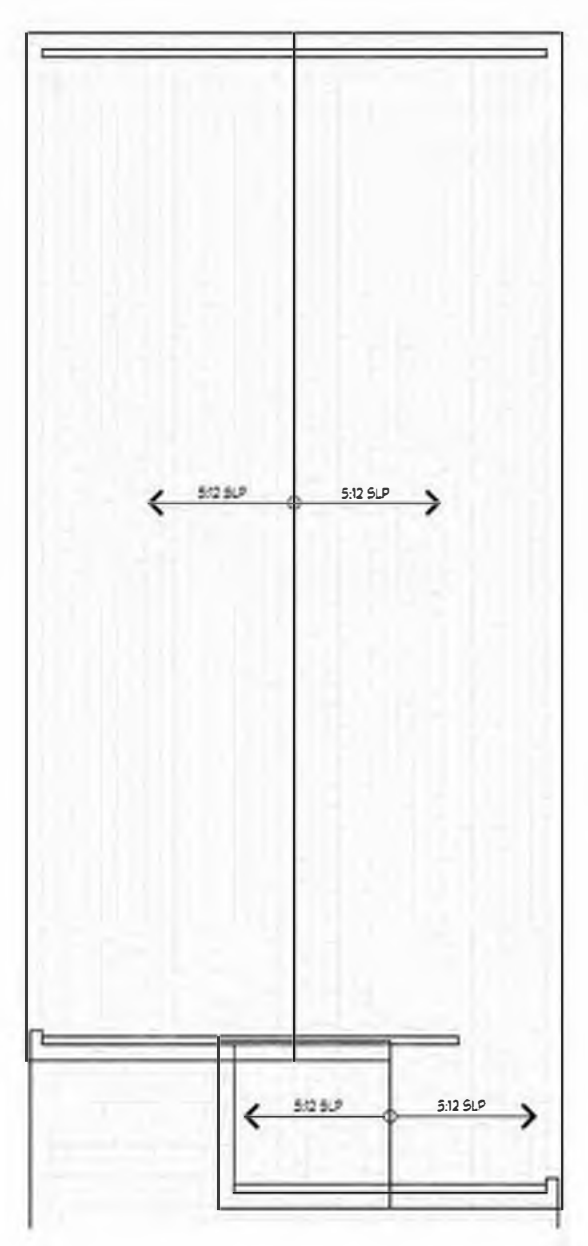
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2 PLAN 2 RIGHT ELEVATION



2 PLAN 2 REAR ELEVATION



2 ROOF PLAN 2B



2 PLAN 2 LEFT ELEVATION



2 PLAN 2 FRONT ELEVATION

Henghou Group
 177 E. Colorado BLVD Ste. 200
 Pasadena, CA 91105

Gateway Heights
 Moreno Valley, USA

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

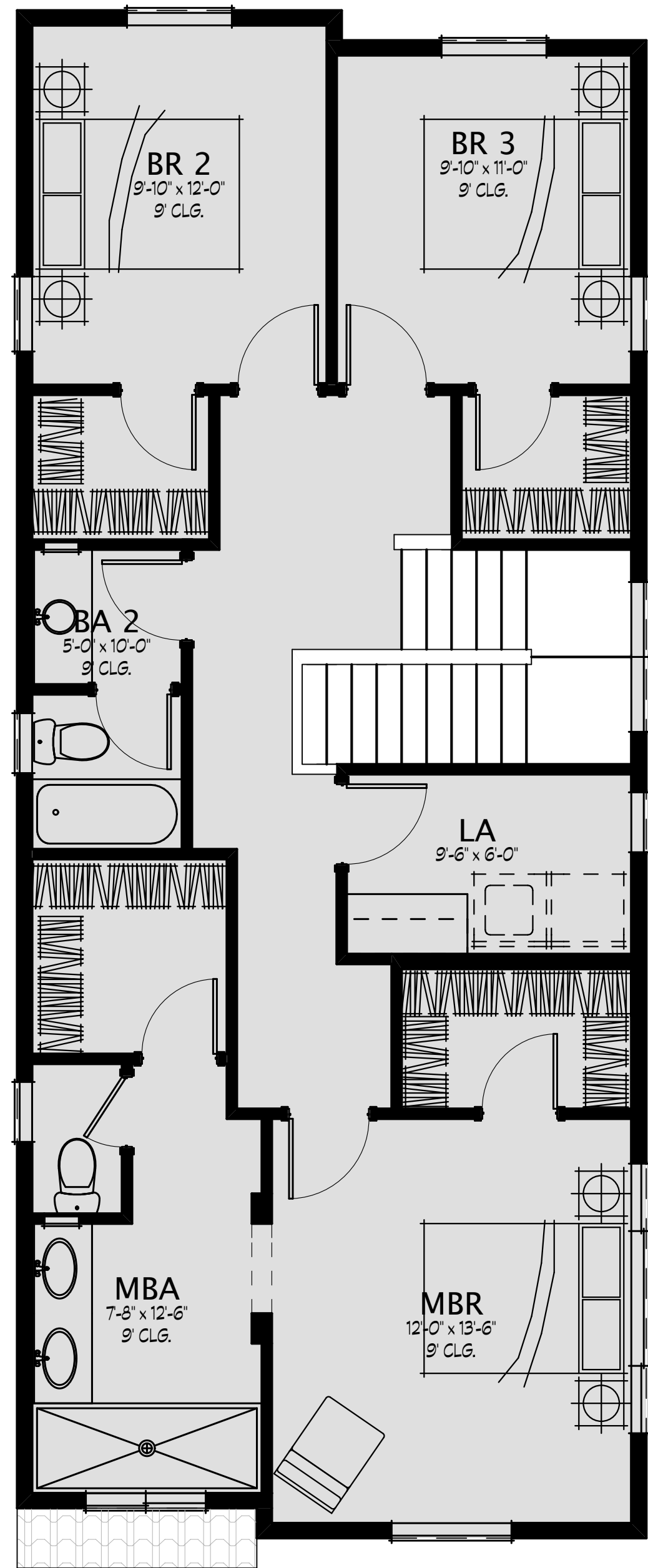
PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M.
DRAWN BY:	SJ
SHEET ISSUE DATE:	3/10/21

SHEET TITLE

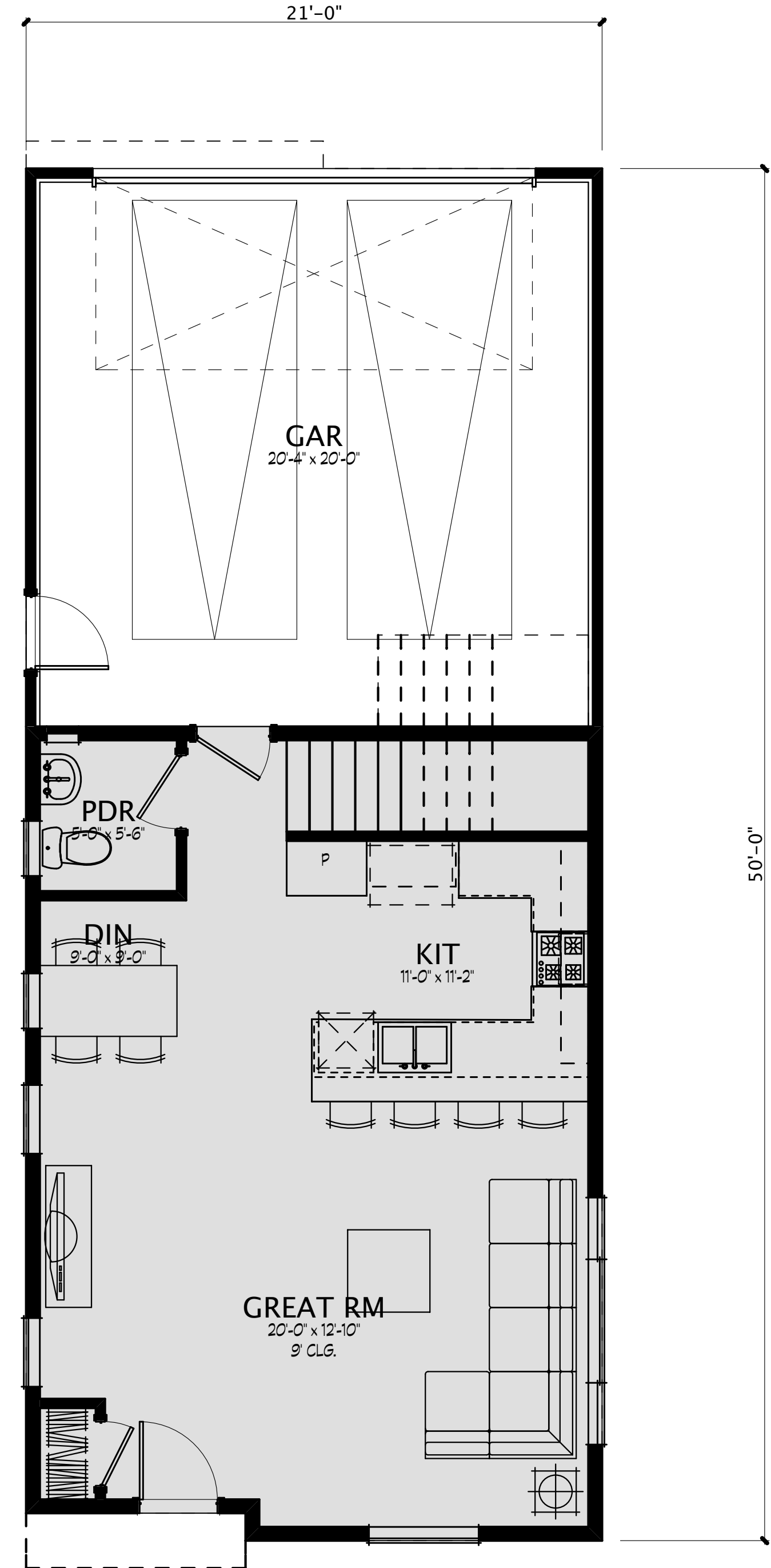
PLAN 2 EXTERIOR B

SHEET NUMBER
A-2.3

Minden, May 3, 2021, 11:04 AM, 6/20/2019 - Henghou Group - Gateway Hts. - Moreno Valley, ASCH, CAD, 21039 - Moreno Valley Plan 3, pt. 1, 10/20/2018



3 PLAN 3 SECOND FLOOR 987 sq ft



3 PLAN 3 FIRST FLOOR 615 sq ft
TOTAL 1602 sq ft
3 BEDROOM, 2.5 BATHS

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Henghou Group
177 E. Colorado BLVD, Ste. 200
Pasadena, CA 91105

Gateway Heights
Moreno Valley, USA

Attachment: Appendices H.L. (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M
DRAWN BY:	SJ
SHEET ISSUE DATE:	5/3

SHEET TITLE

PLAN 3A
(PLAN 3B SIM)

SHEET NUMBER

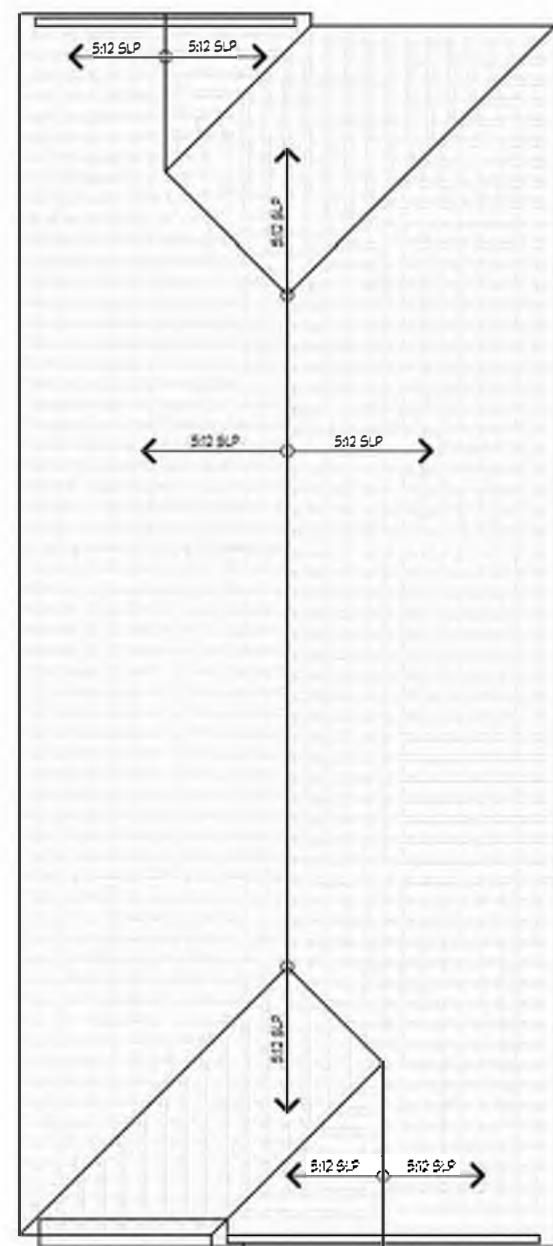
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3 PLAN 3A RIGHT ELEVATION



3 PLAN 3A REAR ELEVATION



3 ROOF PLAN 3A



4 PLAN 3A LEFT ELEVATION



3 PLAN 3A FRONT ELEVATION

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Henghou Group
177 E. Colorado BLVD, Ste. 200
Pasadena, CA 91105
Gateway Heights
Moreno Valley, USA

Attachment: Appendices H.L. (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M.
DRAWN BY:	SJ
SHEET ISSUE DATE:	3/10/21

SHEET TITLE

PLAN 3 EXTERIOR A

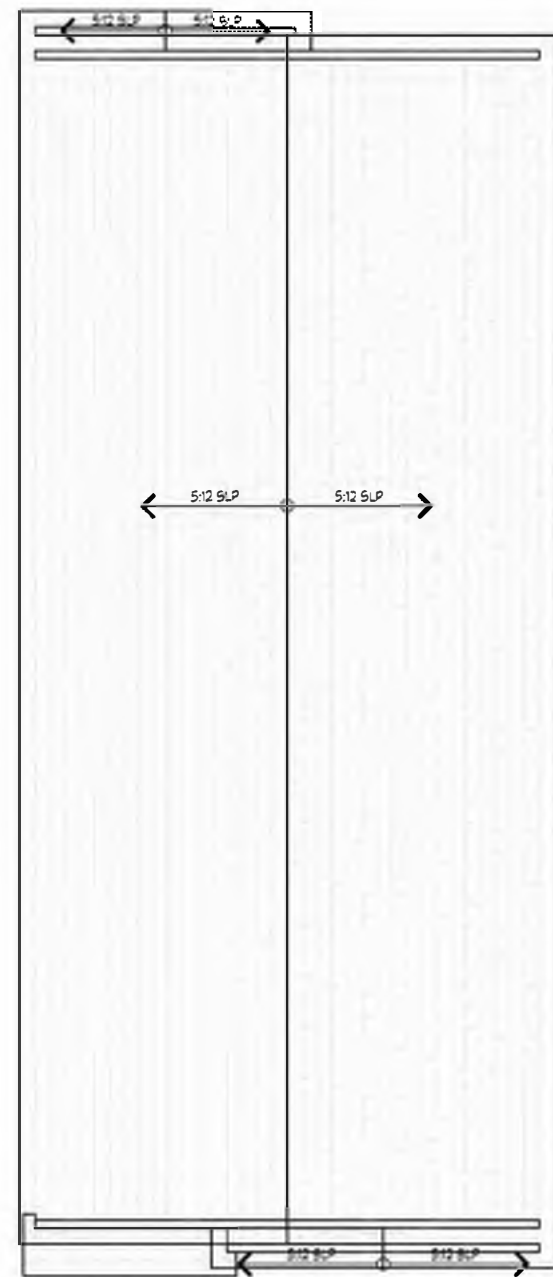
SHEET NUMBER
A-3.2



3 PLAN 3B RIGHT ELEVATION



3 PLAN 3B REAR ELEVATION



3 ROOF PLAN 3B



3 PLAN 3B LEFT ELEVATION



3 PLAN 3B FRONT ELEVATION

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Henghou Group
177 E. Colorado BLVD, Ste. 200
Pasadena, CA 91105
Gateway Heights
Moreno Valley, USA

Attachment: Appendices H.L. (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	210
PROJECT MANAGER:	M.
DRAWN BY:	SJ
SHEET ISSUE DATE:	3/10/23

SHEET TITLE

PLAN 3 EXTERIOR B

SHEET NUMBER
A-3.3

SITE PLAN

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.
SITE PLAN (PEN21-0066)
BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN
UNITED ENGINEERING GROUP CA., INC NOVEMBER 2022

LEGAL DESCRIPTION:

THAT PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY; THENCE RUNNING SOUTH ALONG THE WEST LINE OF SAID SECTION 34, 23.50 CHAINS TO THE CORNER MONUMENT MARKING THE NORTHWEST CORNER OF THE LAND CONVEYED TO CECIL R. G. WEBBE TO CHARLES M. DEXTER BY DEED RECORDED IN BOOK 141, PAGE 398, OF DEEDS, SAN BERNARDINO COUNTY RECORDS; THENCE NORTH 56 DEGREES 31' EAST ALONG THE LINE OF LAND SO CONVEYED TO CHARLES M. DEXTER, 23.91 CHAINS TO THE NORTHEAST CORNER OF SAID LAND SO CONVEYED TO CHARLES M. DEXTER; THENCE NORTH ALONG THE CENTER LINE OF THE NORTHWEST QUARTER OF SAID SECTION 34, 10.40 CHAINS TO THE NORTH LINE OF SAID SECTION 34; THENCE WEST ALONG THE NORTH LINE OF SAID SECTION, 20 CHAINS TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY INTEREST OF THE COUNTY OF RIVERSIDE IN AND TO THAT PORTION LYING WITHIN MORTON ROAD.

ALSO EXCEPTING THEREFROM THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING SOUTHWESTERLY OF SAID MORTON ROAD.

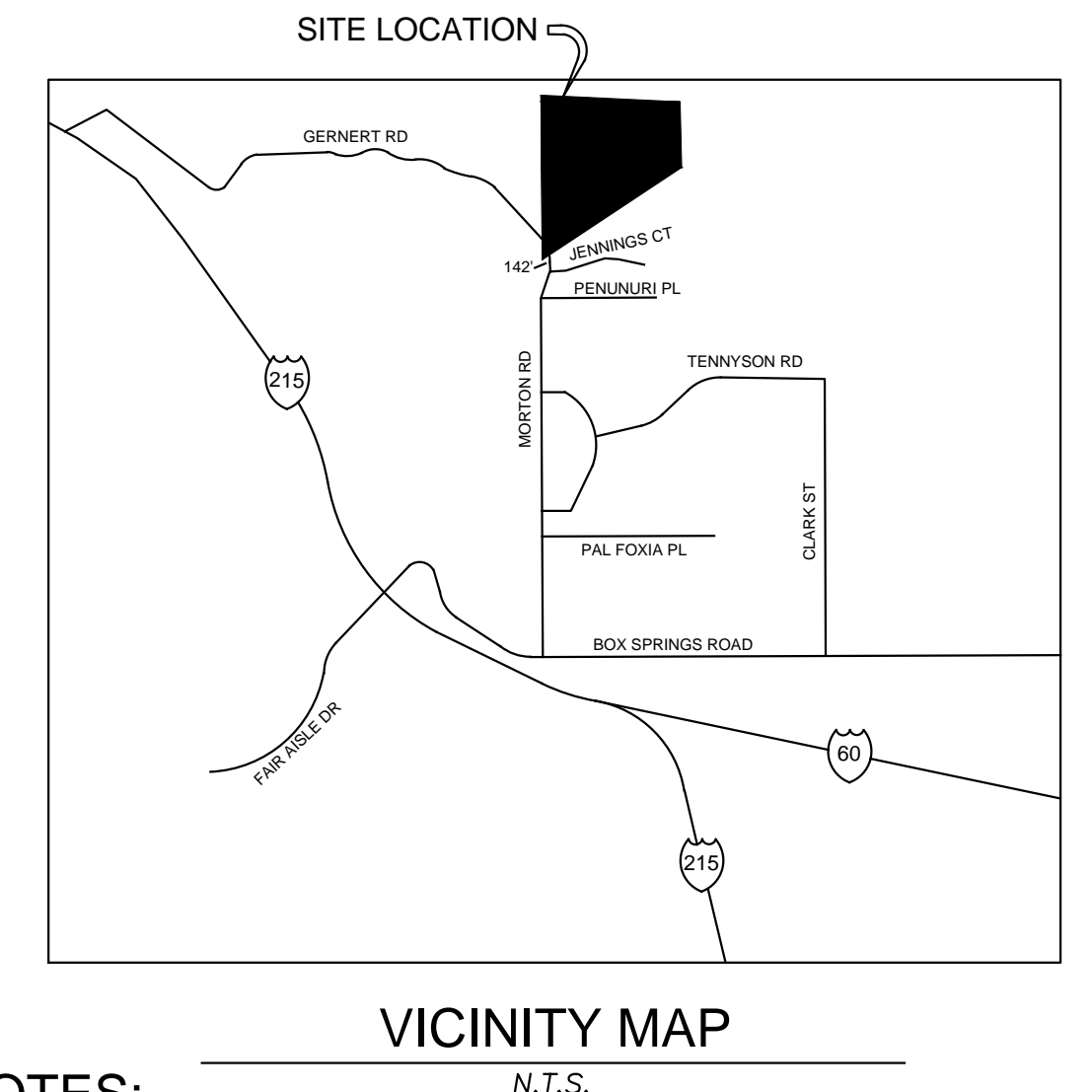
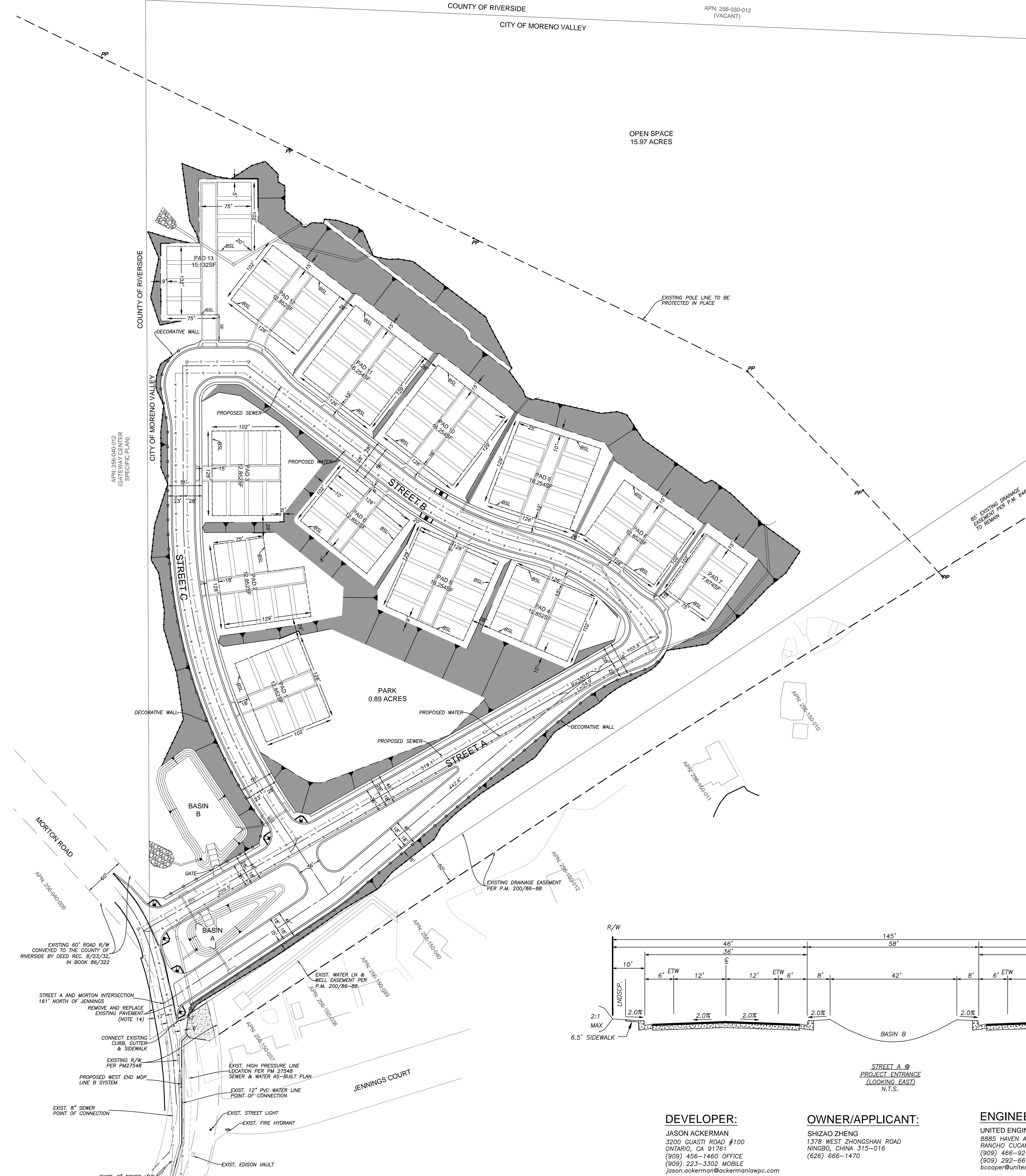
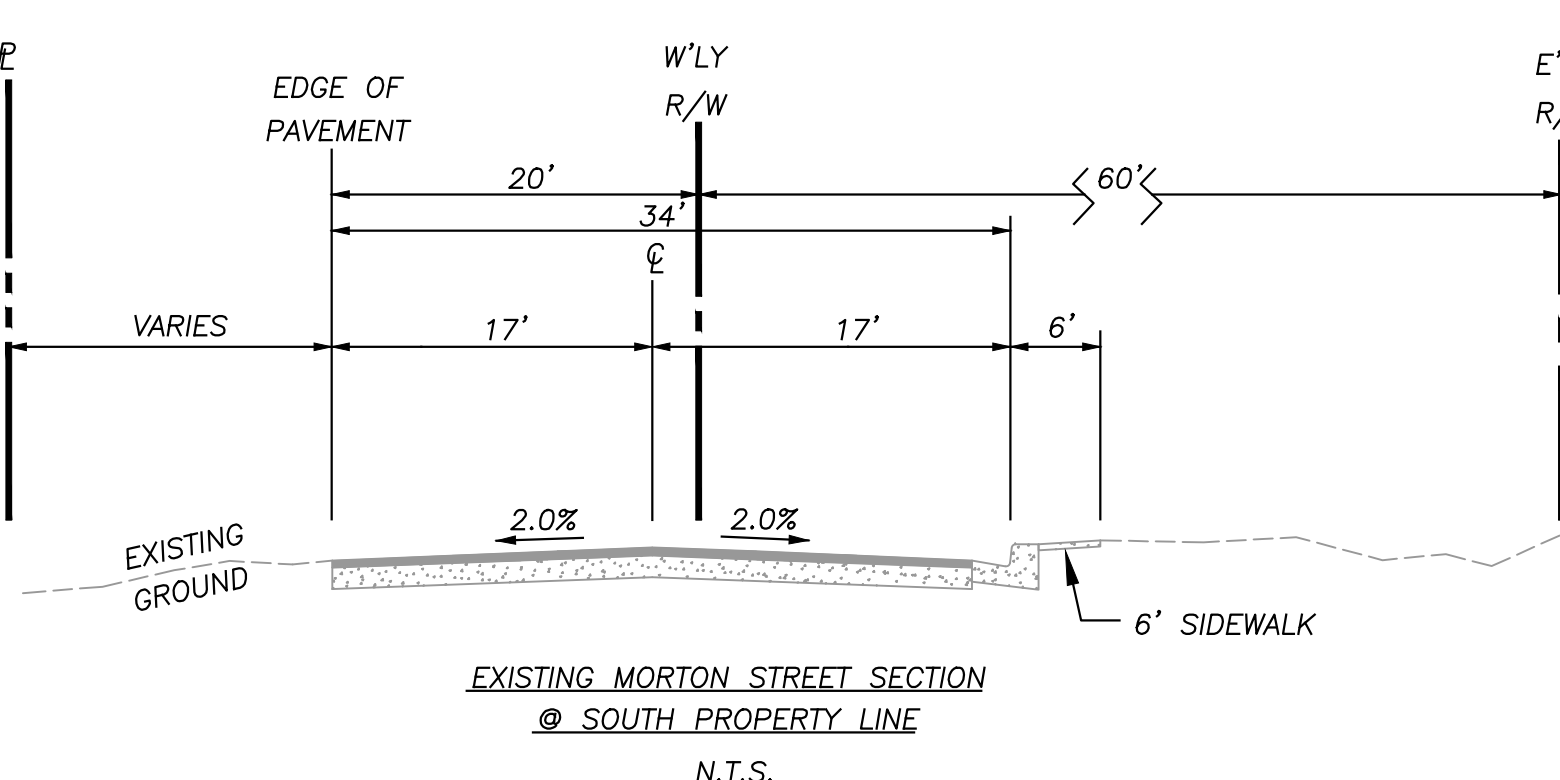
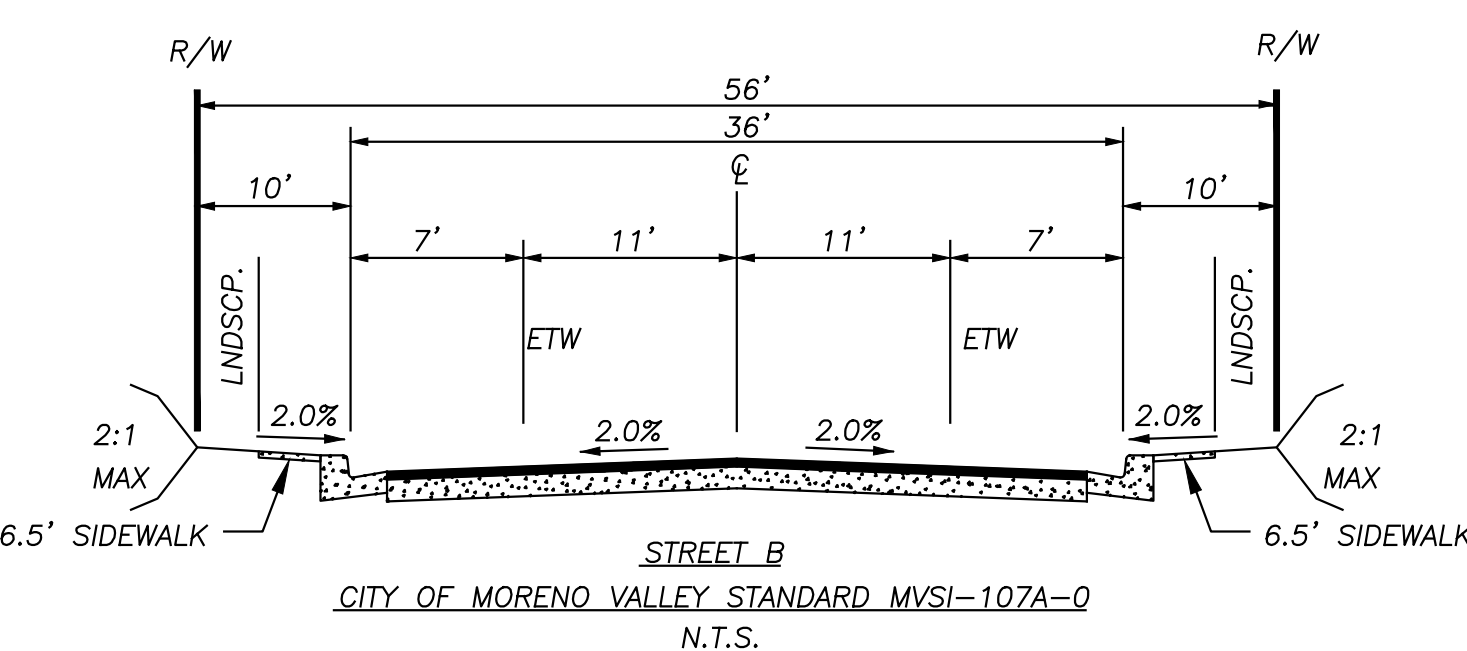
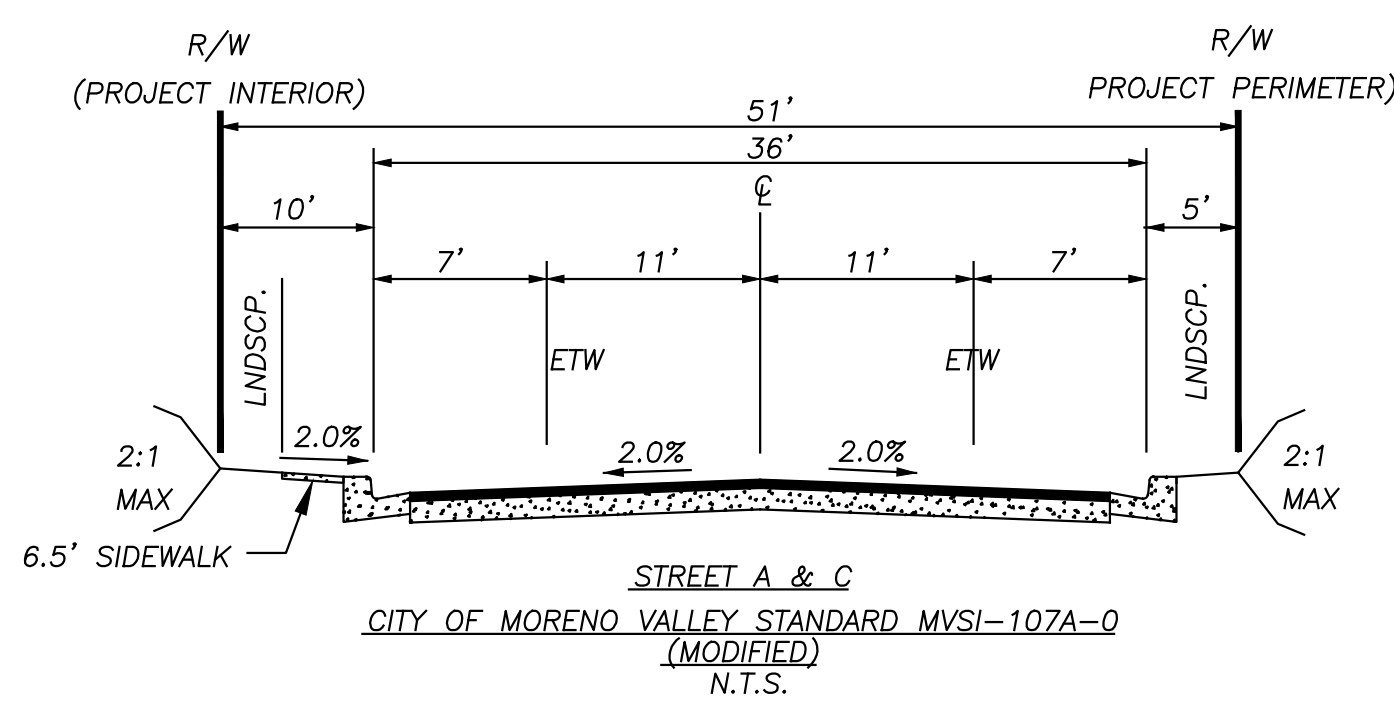
PARCEL NUMBER(S): 256-150-001

UTILITY PURVEYORS:

Table listing utility providers for Water, Sewer, Telephone, and School. Includes Eastern Municipal Water District, Southern California Edison, Southern California Gas, Spectrum, and Moreno Valley USD.

LEGEND

- FF FINISHED FLOOR
FL FLOW LINE
R/W RIGHT-OF-WAY
BSL BUILDING SETBACK LINE
FSL FIRE SEPARATION LINE
S PROPOSED SEWER LINE
W PROPOSED WATER LINE
ES EXISTING SEWER LINE
EW EXISTING WATER LINE
D DEVELOPMENT LIMITS
P PROJECT BOUNDARY
C CENTERLINE
DR EXISTING DIRT ROAD
PP POWER POLE
OL OVERHEAD POWER LINE
FM FUEL MODIFICATION ZONE
DW DECORATIVE WALL



GENERAL NOTES:

- 1. APN: 256-150-001
2. TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL-1FT.
3. THE LAND DOES NOT LIE WITHIN AN ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP, PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
4. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
5. THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
6. THIS AREA IS NOT WITHIN FAULT ZONE.
7. BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
8. PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
9. HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS AND FUEL MODIFICATION AREAS.
10. PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
11. ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
12. TO THE BEST OF OUR KNOWLEDGE, MORTON ROAD NORTHERLY OF JENNINGS COURT HAS NOT BEEN VACATED FROM THE CURVE ALIGNMENT THAT IS RECORDED ON PM27548.
13. PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
14. REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.

SITE DATA

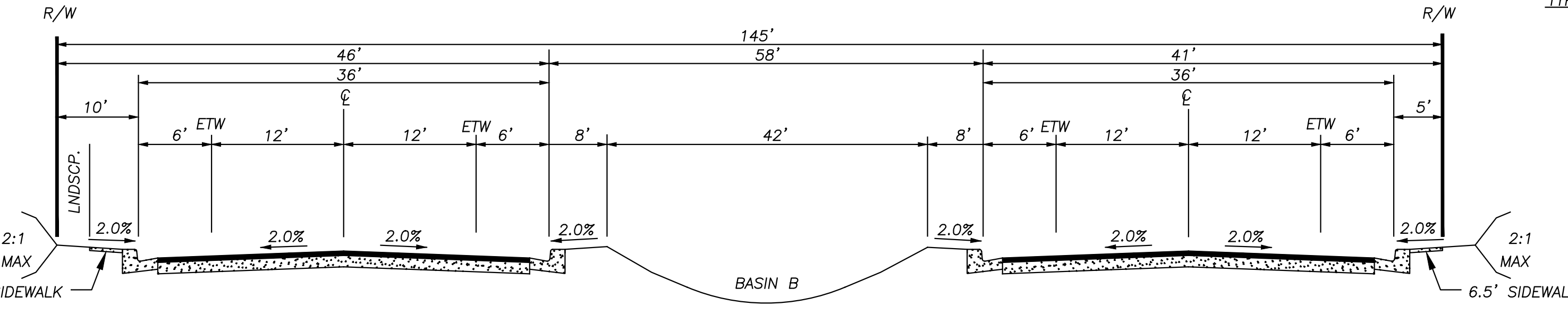
Table with site statistics: Total Gross Area (32.56 ACRES), Total Net Area (32.56 ACRES), Proposed R10 Zone (16.59 ACRES), Proposed Open Space Zone (15.97 ACRES), etc.

PROJECT LAND USE

EXISTING LAND USE: VACANT
PROPOSED LAND USE: RESIDENTIAL
EXISTING ZONING: R2 AND HR
PROPOSED ZONING: R10 AND OS

SURROUNDING LAND USE

NORTH: HILLSIDE RESIDENTIAL (HR) & CONSERVATION (COUNTY OF RIVERSIDE)
SOUTH: RESIDENTIAL MAX SDU/ACRE (RS)
EAST: HILLSIDE RESIDENTIAL (HR)
WEST: GATEWAY CENTER SPECIFIC PLAN (COUNTY OF RIVERSIDE)



DEVELOPER: JASON ACKERMAN
3200 GUASTI ROAD #100
ONTARIO, CA 91761
(909) 456-1460 OFFICE
(909) 223-3302 MOBILE
jason.ackerman@ackermaniawpc.com

OWNER/APPLICANT: SHIZAO ZHENG
1378 WEST ZHONGSHAN ROAD
NINGBO, CHINA 315-016
(626) 666-1470

ENGINEER/PLAN PREPARER: UNITED ENGINEERING GROUP CA, INC
8885 HAVEN AVENUE, SUITE 195
RANCHO CUCAMONGA, CA 91730
(909) 466-9240 #203 OFFICE
(909) 292-6677 MOBILE
bcopper@unitedeng.com

Table with columns: SUBMITTALS, NO., REVISIONS DESCRIPTION, DATE. Includes entries for Design, Draw, and Check.

DESIGNED BY: CHRISTOPHER F. LENZ
DRAWN BY: R.C.E. No. 63001
CHECKED BY:
DATE: NOVEMBER 2022

REGISTERED LAND SURVEYOR: DEAN C. PHILLIPS
NO. 63001
EXP. 9/30/21
STATE OF CALIFORNIA
DEAN C. PHILLIPS
L.S. No. 6974
dphillips@unitedeng.com

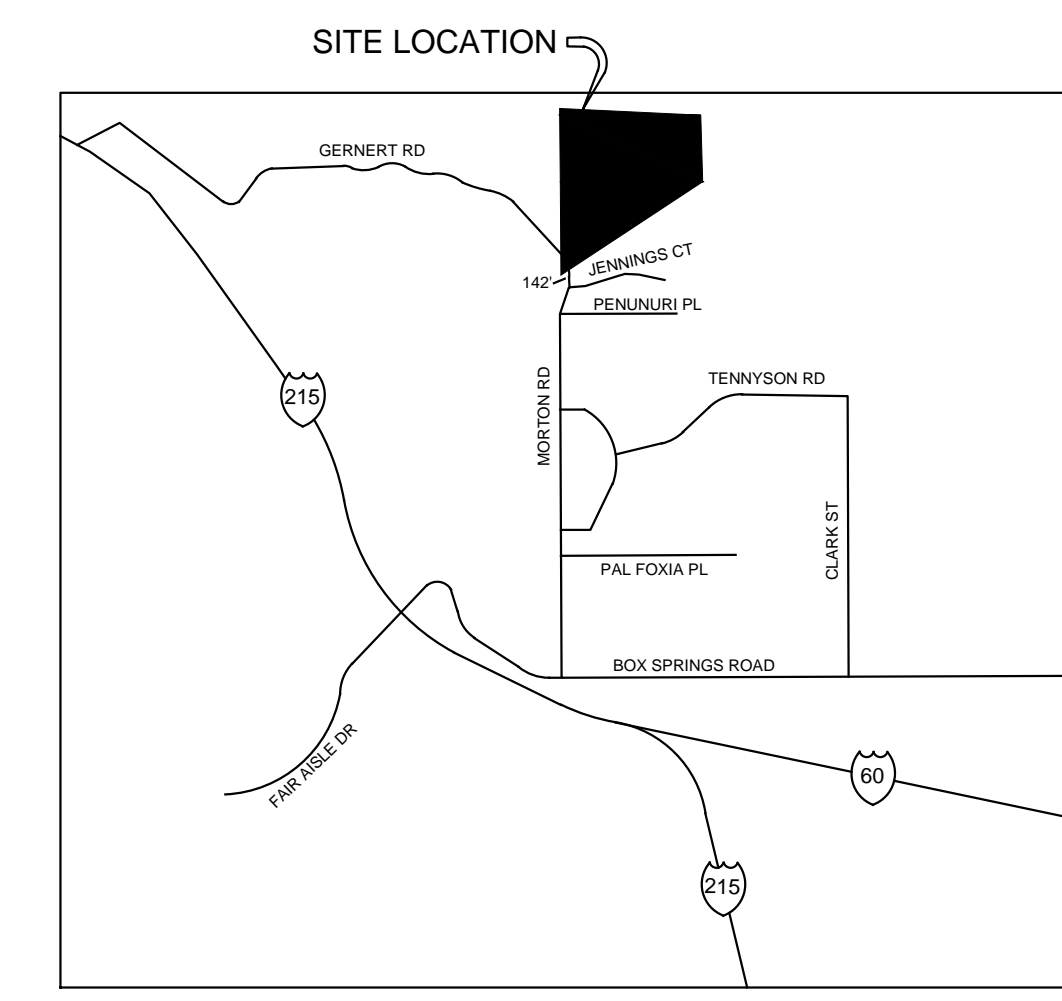
ueg united engineering group logo and address: 8885 Haven Avenue Suite 195 Rancho Cucamonga, CA 91730

SITE PLAN GATEWAY HEIGHTS CONDITIONAL USE PERMIT PEN21-0066 NOVEMBER 2022 SHEET 1 OF 1 PROJECT NUMBER CA-30182

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.
PRELIMINARY GRADING PLAN (PEN21-0066)

BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN

UNITED ENGINEERING GROUP CA., INC NOVEMBER 2022



VICINITY MAP
N.T.S.

GENERAL NOTES:

1. APN: 256-150-001
2. TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL-1FT.
3. THE LAND DOES NOT LIE WITHIN AN ALOUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALOUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP. PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
4. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
5. THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
6. THIS AREA IS NOT WITHIN FAULT ZONE.
7. BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
8. PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
9. HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS AND FUEL MODIFICATION AREAS.
10. PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
11. ALL GRADING WORK SHOWN ON THIS PLAN SHALL BE DONE IN COMPLIANCE WITH CHAPTER 33 OF THE UNIFORM BUILDING CODE AND LOCAL ORDINANCE.
12. PRIOR TO ANY GRADING WORK, A GRADING PERMIT SHALL BE OBTAINED FROM THE CITY OF MORENO VALLEY BUILDING DEPARTMENT.
13. ALL GRADING SHALL CONFORM TO THE RECOMMENDATIONS AND REQUIREMENTS OF THE PRELIMINARY SOILS REPORT DATED SEPTEMBER 22, 2018 BY LGC GEO-ENVIRONMENTAL, INC.
14. ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
15. PADS 4, 5, AND 6 DEVIATE FROM THE STANDARD GRADING DETAILS TO DRAIN TOWARDS THE PARK, AWAY FROM THE STREET. AT FINAL DESIGN STORM DRAIN MAY BE REQUIRED TO COLLECT AND ROUTE FLOWS TO THE PARK AREA.
16. PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
17. REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORNINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.
18. OFFSITE AREA OUTSIDE OF PROJECT TOPOGRAPHY LIMITS. AT FINAL DESIGN AND IN CONJUNCTION WITH LINE B DESIGN, ADDITIONAL DESIGN SURVEY WILL BE REQUIRED.
19. PROJECT STREET LIGHT DESIGN TO COMPLY WITH CITY STANDARDS. STREET LIGHT DESIGN PLANS TO BE PREPARED WITH FINAL DESIGN DRAWINGS.

LEGEND

FF	FINISHED FLOOR	FS	FINISHED SURFACE
FL	FLOW LINE	HW	HIGH WATER
R/W	RIGHT-OF-WAY	INV	INVERT
BSL	BUILDING SETBACK LINE	TC	TOP OF CURB
EP	EDGE OF PAVEMENT	HP	HIGH POINT
-S-S-	PROPOSED SEWER LINE	-W-W-	PROPOSED WATER LINE
-E-E-	EXISTING SEWER LINE	-X-X-	EXISTING WATER LINE
-D-D-	DEVELOPMENT LIMITS	-P-P-	PROJECT BOUNDARY
-C-C-	CENTERLINE	-D-D-	EXISTING DIRT ROAD
-P-P-	POWER POLE	-O-O-	OVERHEAD POWER LINE
-F-F-	FUEL MODIFICATION ZONE	-S-S-	2:1 SLOPE (UNLESS OTHERWISE NOTED)
-D-D-	DECORATIVE WALL		

UTILITY PURVEYORS:

WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA. 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA. 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25634 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7500		

ESTIMATED EARTHWORK QUANTITIES (RAW)

NOTE: THE ABOVE QUANTITIES DO NOT REFLECT ANY SWELLING, SUBSIDENCE, OVER EXCAVATION, OR ANY SPECIAL CONDITIONS THAT MAY BE SPECIFIED IN THE PRELIMINARY SOILS REPORT AND ARE FOR REFERENCE AND FEE PURPOSES ONLY. SINCE THE ENGINEER CANNOT CONTROL THE EXACT METHOD OR MEANS USED BY THE CONTRACTOR DURING GRADING OPERATIONS, NOR CAN THE ENGINEER GUARANTEE THE EXACT SOIL CONDITION OVER THE ENTIRE SITE, THE ENGINEER ASSUME NO RESPONSIBILITY FOR THE FINAL EARTHWORK QUANTITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THEIR OWN EARTHWORK QUANTITIES FOR BIDDING, CONTRACT, AND CONSTRUCTION PURPOSES.

NOTE: 90,148 CU. YDS. FILL: 56,011 CU. YDS.

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ENGINEER/PLAN PREPARER

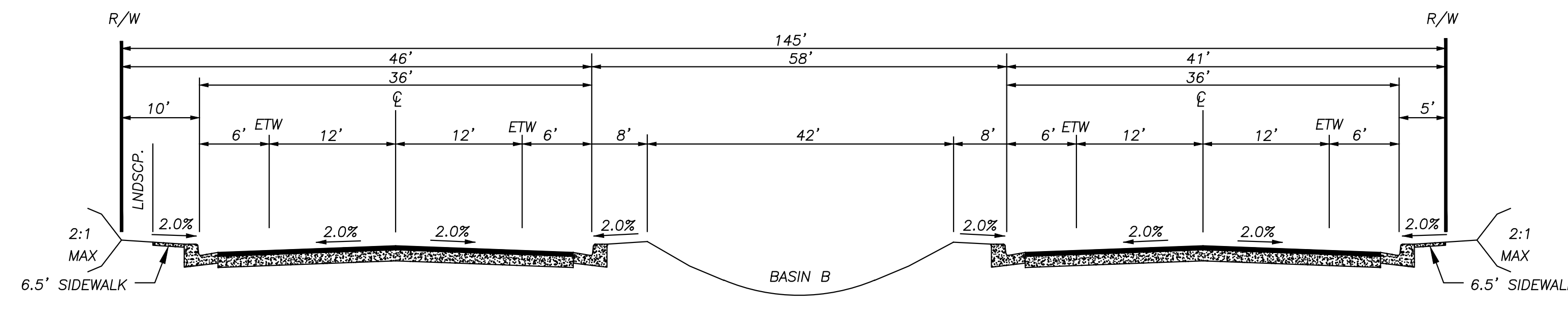
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bcooper@unitedeng.com

GEOTECHNICAL ENGINEER

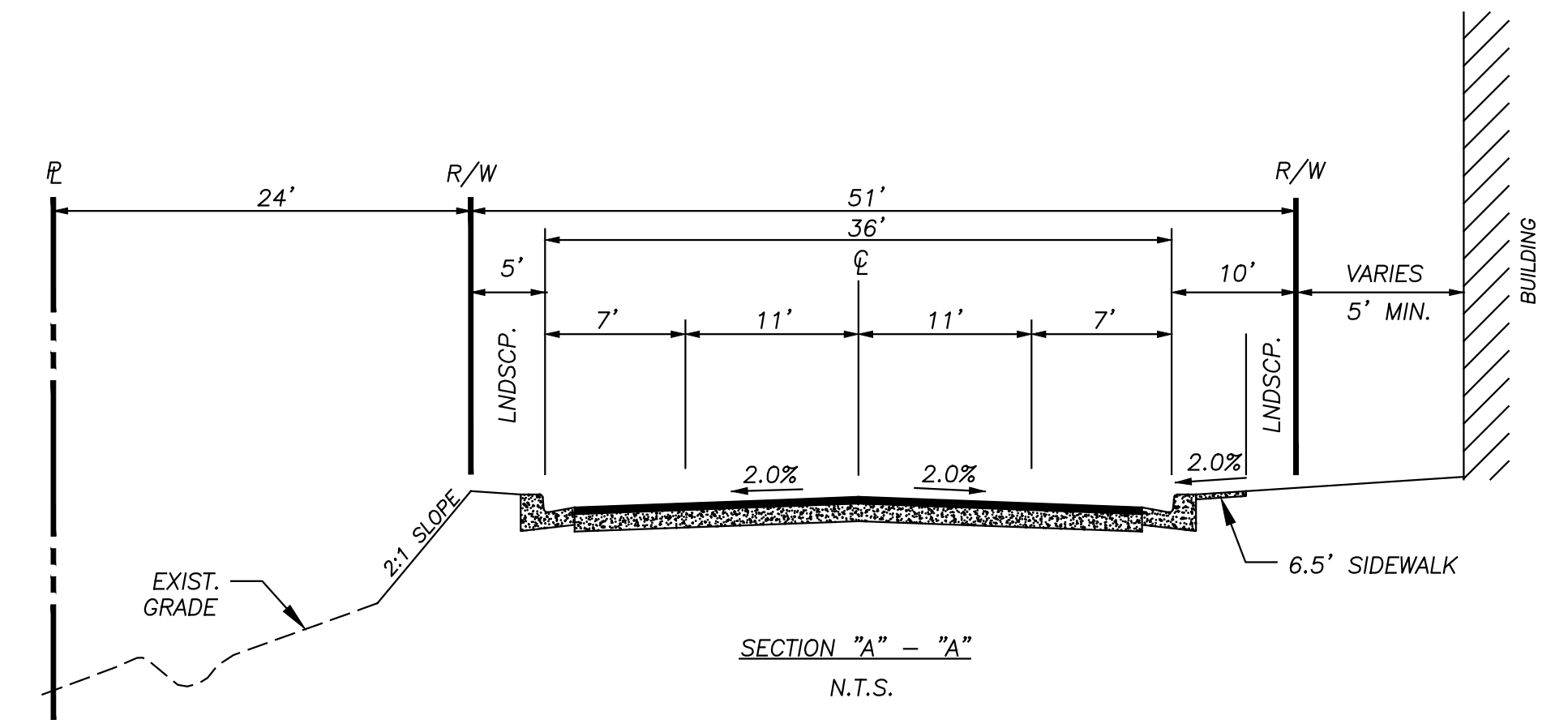
LGC GEO-ENVIRONMENTAL, INC.
27570 COMMERCE CENTER DRIVE
SUITE 128
TEMECULA, CA 92590
(951) 297-2450

PROJECT DISTURBANCE:

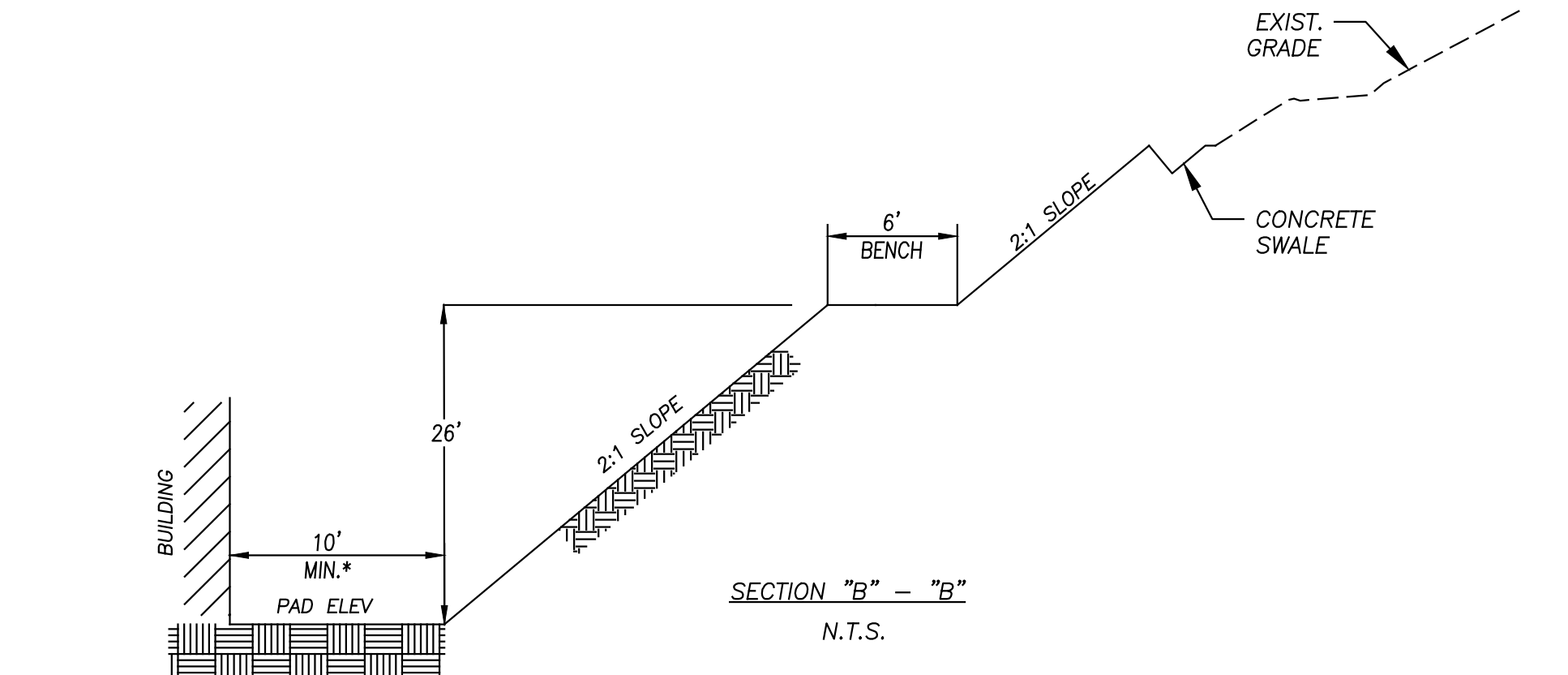
GROSS SITE AREA: 32.80 AC
NET SITE AREA (AREA OF DISTURBANCE): 15.43 AC
TOTAL IMPERVIOUS SURFACE AREA: 10.03 AC



SECTION C-C
PROJECT ENTRANCE
(LOOKING EAST)
N.T.S.

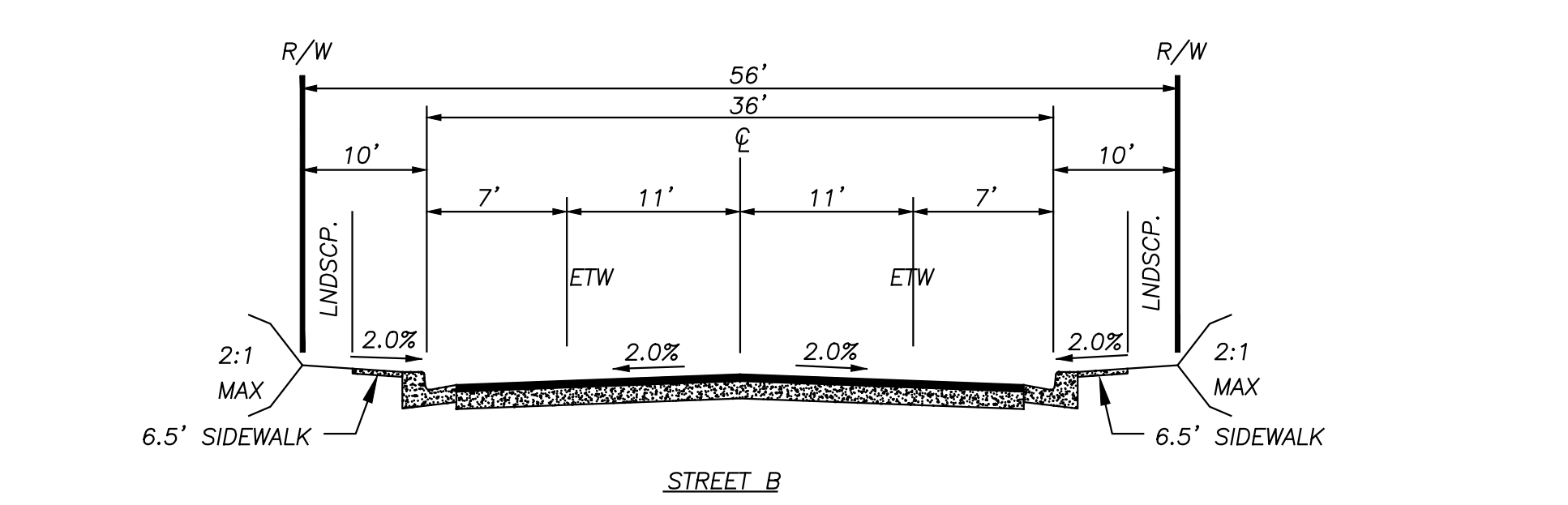


SECTION A-A
N.T.S.

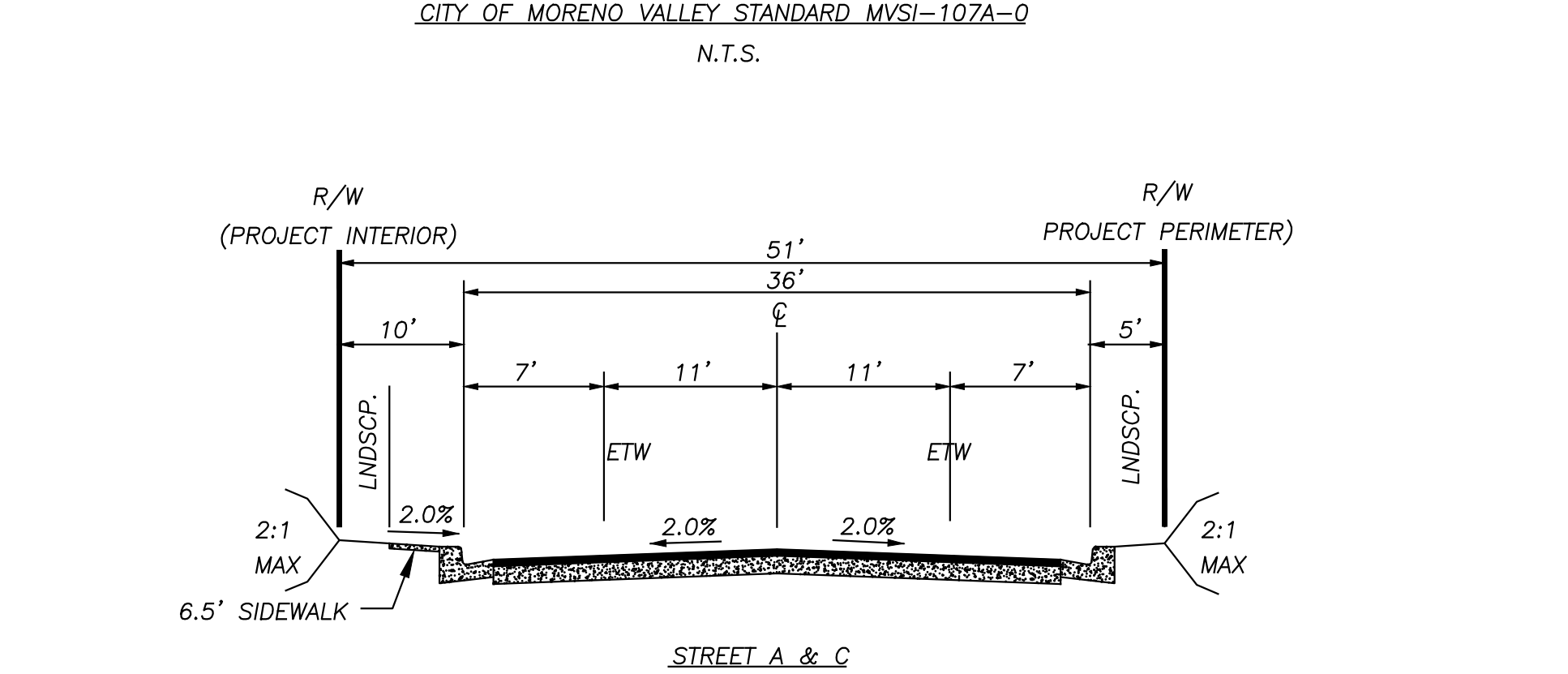


SECTION B-B
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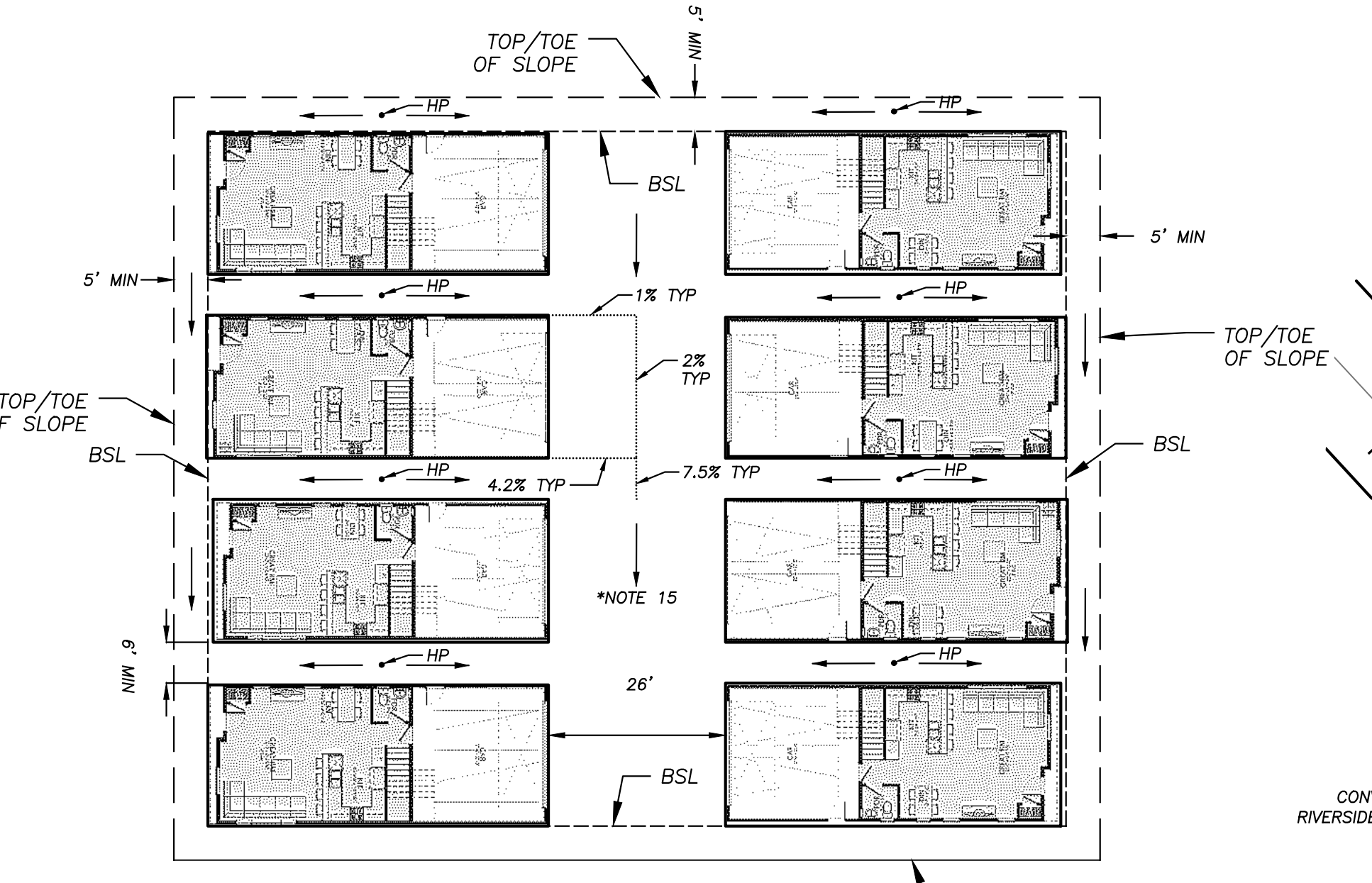
* MINIMUM SETBACKS PER CALIFORNIA BUILDING CODE 1808.7:
 - TOE OF SLOPE = AT LEAST THE SMALLER OF H/2 OR 15'
 - TOP OF SLOPE = AT LEAST THE SMALLER OF H/3 OR 40'



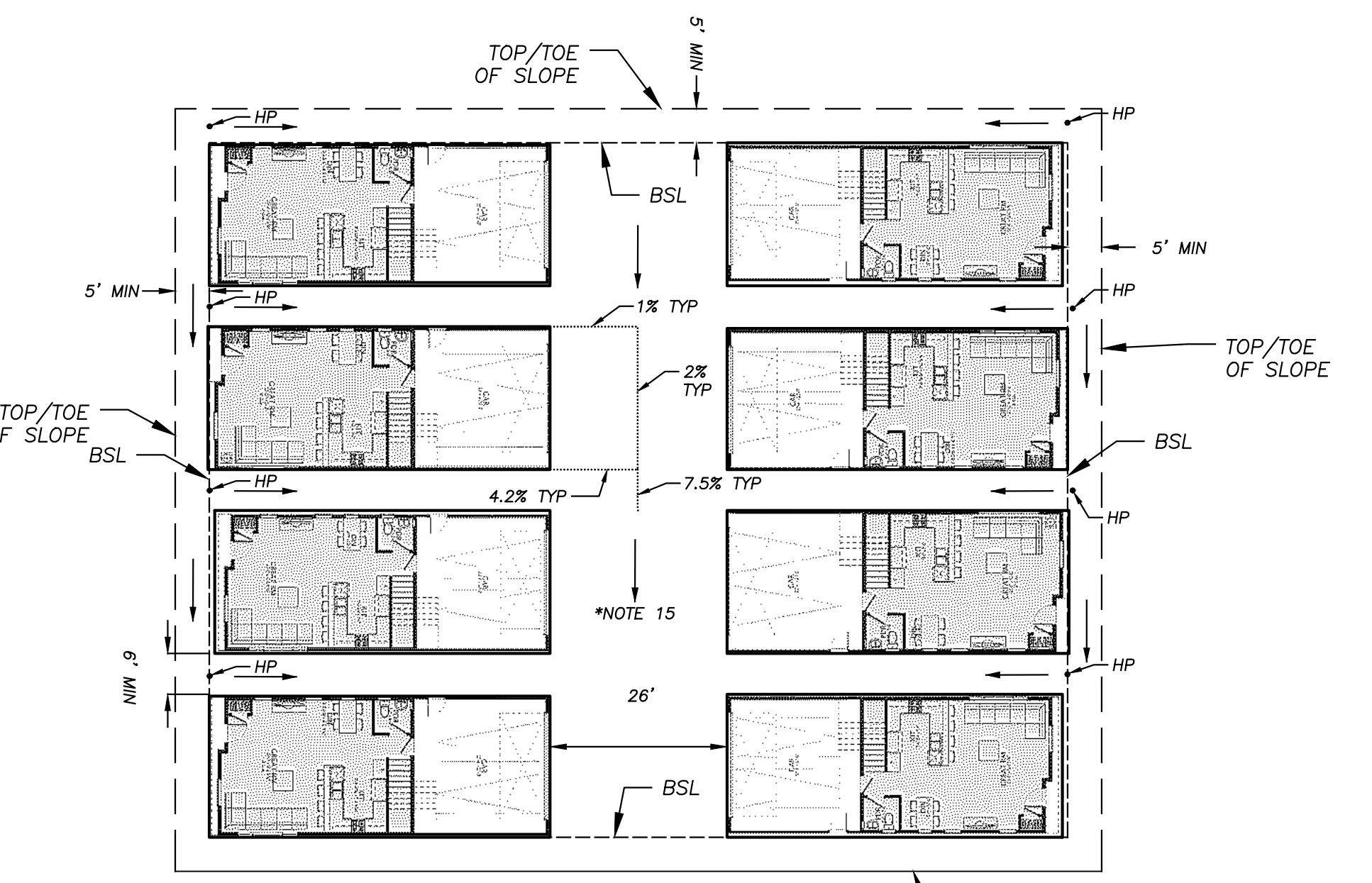
STREET B
CITY OF MORENO VALLEY STANDARD MVS1-107A-0
N.T.S.



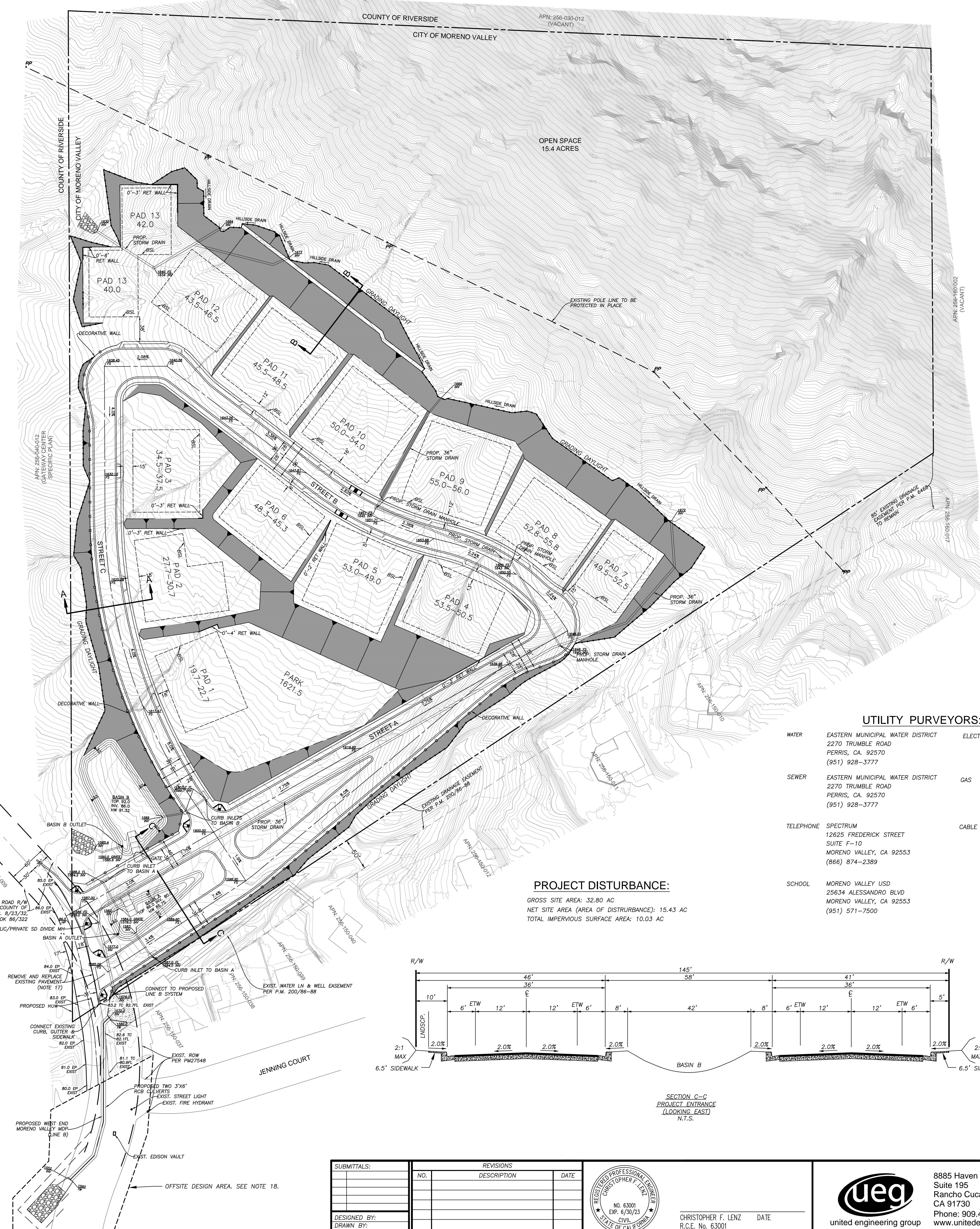
STREET A & C
CITY OF MORENO VALLEY STANDARD MVS1-107A-0
(MODIFIED)
N.T.S.



TYPICAL CLUSTER GRADING - OPTION 1



TYPICAL CLUSTER GRADING - OPTION 2



SUBMITTALS:		REVISIONS		DATE
NO.	DESCRIPTION	NO.	DESCRIPTION	DATE

DESIGNED BY: CHRISTOPHER F. LENZ DATE: _____
 DRAWN BY: R.C.E. NO. 63001 DATE: _____
 CHECKED BY: _____

ueg
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CA 91730
Phone: 909.466.9240
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PRELIMINARY GRADING PLAN

GATEWAY HEIGHTS
CONDITIONAL USE PERMIT
PEN21-0066

NOVEMBER 2022
SHEET 1 OF 1
PROJECT NUMBER
CA-30182

6.0 ARCHITECTURE

The architectural guidelines in this manual have been developed to ensure architectural continuity and compatibility throughout the project; to promote a distinctive architectural theme; and to avoid a mundane repetition of too similar architectural design elements. These guidelines will provide a set of basic concepts for development but are not meant to limit future creativity in design.

These styles and concepts should be incorporated to provide a variety of quality housing types.

6.1 General Guidelines

The following general guidelines should be considered in the designing and layout of the project:

- A common set of design style and design elements should be included throughout the project.
- Long unarticulated building facades should be avoided
- Natural building materials should be varied throughout the project, avoiding long stretches of similar street scene
- Offset roof planes, columns, vertical and horizontal articulation or other projecting architectural features shall occur on those facades of the residence that are visible from the street or open space
- The visual impact of garages shall be reduced to the maximum extent practicable

6.2 Architectural styles

Two architectural styles have been set forth as examples in this document to begin to identify and illustrate the intent and objective of these design guidelines in terms of architectural style and variety. Santa Barbara and Modern Farmhouse architectural styles are discussed in the following pages and depicted in **Figures 1 & 2** to establish the types and level of architectural detail which will assist in achieving the project design objectives. Discussions of each of these styles as well as illustrations of typical elevations and features are located on the following pages.

6.2.1 Santa Barbara

Santa Barbara style is an architectural and interior design style derived from Mediterranean and Spanish-revival architecture, often characterized by deep red tones and polished wood textures that contrast with stark white walls.

Santa Barbara style architecture and interior design are characterized by white stucco walls, exposed beam ceilings, red-tile roofs and floors, arcades, and courtyards.

Figure 1 – Santa Barbara



Features typical of the Santa Barbara style include:

- White stucco walls
- Exposed beam ceilings
- Tile roofs
- Shutters
- Decorative Vents

6.2.2 Modern Farmhouse

The Modern farmhouse style combines practical elements (simple floor plan, white walls) with rustic materials (wood floors, hand-hewn beams, and wrought-iron hardware). And you'll see this style throughout the U.S., with regional variations. For example, you might spot a Dutch door or two in a New England farmhouse, or wraparound porches on homes in the Deep South

Features typical of the Modern Farmhouse style include:

- Reclaimed wood
- Barnboard details
- Wrought iron accents
- Wide plank floors
- Rafter Tails
- Stone Veneers

Figure 2 – Modern Farmhouse



7.0 UTILITIES

Currently the site is undeveloped and the site does contain some existing overhead electrical lines as well as water and sewer lines located in Morton Rd. All existing and new onsite utilities that will serve the subject site will be placed underground except as approved by Public Works. Operation and maintenance of all utilities and facilities will be managed by the appropriate operating entity upon approval and completion of construction. Sewer facilities, water facilities, streetlights, and fire hydrants will be provided according to the appropriate agency’s guidelines, per the recommendations of Public Works and City of Moreno Valley Fire Departments and other governmental regulations applicable to the construction of various facilities.

Utility Providers

Services	Provider	Location
Electrical	Southern California Edison	At site
Telephone	Spectrum	TBD
Cable	Spectrum	TBD
Natural Gas	Southern California Gas Company	TBD
Water	Eastern Municipal Water District	At site
Sanitary Sewer	Eastern Municipal Water District	At site
Fire & Emergency	City of Moreno Valley Fire Dept	TBD

8.0 COVENANTS, CONDITIONS AND RESTRICTIONS (CC&R’S)

Table 8-1 below details the maintenance responsibilities for the various utilities and common areas within Gateway Heights. A majority of the common areas will be maintained by a Home Owners Association (HOA). The HOA will be established in conjunction with development of the project. CC&R's for Gateway Heights that include language for the establishment of a HOA and provisions for creation of liens in conjunction with the HOA, for maintenance funding, will be provided prior to recordation of the final map.

MAINTENANCE RESPONSIBILITY				
Table 8-1				
	Home Owners Association	City of Moreno Valley	Riverside County Flood Control	Eastern Municipal Water District
Onsite Storm Drain	X			
Basin A	X			
Basin B	X			
Line B (across Morton Rd)			X	
Headwalls			X	
Water	X			
Sewer				X
Streets	X			
Landscaping	X			
Entry Monuments	X			
Paseos & Parkways	X			
Park	X			

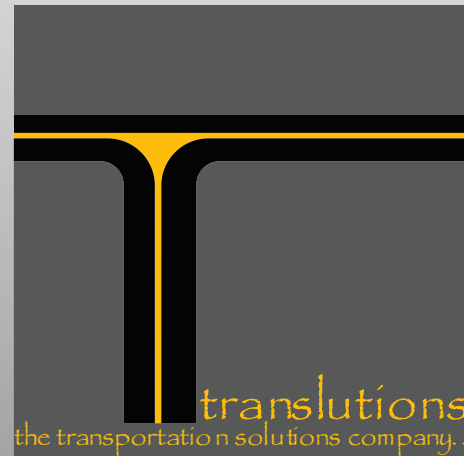
Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Appendix K
Traffic Impact Analysis

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GATEWAY HIGHLANDS
RESIDENTIAL

TRAFFIC IMPACT ANALYSIS

FEBRUARY 12, 2021

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



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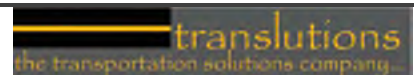
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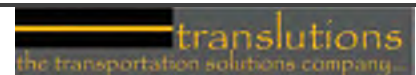
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1.0 INTRODUCTION

This report presents the methodology, findings and conclusions of the traffic impact analysis (TIA) prepared for the proposed Gateway Highlands Residential development project. The proposed project site is located on the eastside of Morton Road and north of Jennings Court, in the City of Moreno Valley (City). The project proposes the construction of 108 detached condominiums.

1.1 Purpose of the Traffic Study and Study Objectives

This report is intended to satisfy the requirements for a TIA established by the City of Moreno Valley *Transportation Impact Analysis Preparation Guide for Vehicles Miles Traveled and Level of Service Assessment*, (June 2020), as well as the requirements for the disclosure of potential impacts and mitigation measures per the California Environmental Quality Act (CEQA). The study area, analysis scenarios, and analysis methodologies are based on discussion with City staff and included in the approved Scoping Agreement. Appendix A includes the approved Scoping Agreement.

1.2 Project Location & Study Area

The project is located on the eastside of Morton Road and north of Jennings Court. The project proposes includes 108 detached condominiums. Figure 1 shows the regional location of the project. The project opening year is 2023.

Consistent with City Guidelines, this report analyzes intersections of "Collector" or higher classification, at which the project will add 50 or more peak hour trips. The following six intersections were evaluated for traffic operations:

Study Intersections

1. Sycamore Canyon Road and Fair Isle Drive (Riverside);
2. I-215 Northbound Ramps and Fair Isle Drive-Box Springs Road (Moreno Valley);
3. Morton Road and Project Driveway (Moreno Valley);
4. Morton Road and Woodsworth North (Moreno Valley);
5. Morton Road and Woodsworth South (Moreno Valley); and
6. Morton Road and Box Springs Road (Moreno Valley).

The study area intersections are shown in Figure 2.

This report analyzes weekday a.m. and p.m. peak hour conditions. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 a.m. and 9:00 a.m. The p.m. peak hour is defined as the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m.

1.3 Analysis Scenarios

Based on the City of Moreno Valley Guidelines, this report analyzes traffic conditions for the following scenarios:

1. Existing Conditions;
2. Project Completion Without Project Conditions; and
3. Project Completion With Project Conditions.

Consistent with the CMP, this report analyzes weekday daily, a.m., and p.m. peak hour conditions. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 a.m. and 9:00 a.m. The p.m. peak hour is defined as the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m.

2.0 PROJECT DESCRIPTION

The project proposes the construction of 108 detached condos. Access to the project will be provided by one full-access driveway on Morton Road. The site plan for the proposed project is illustrated in Figure 3.



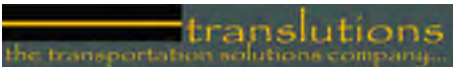
Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

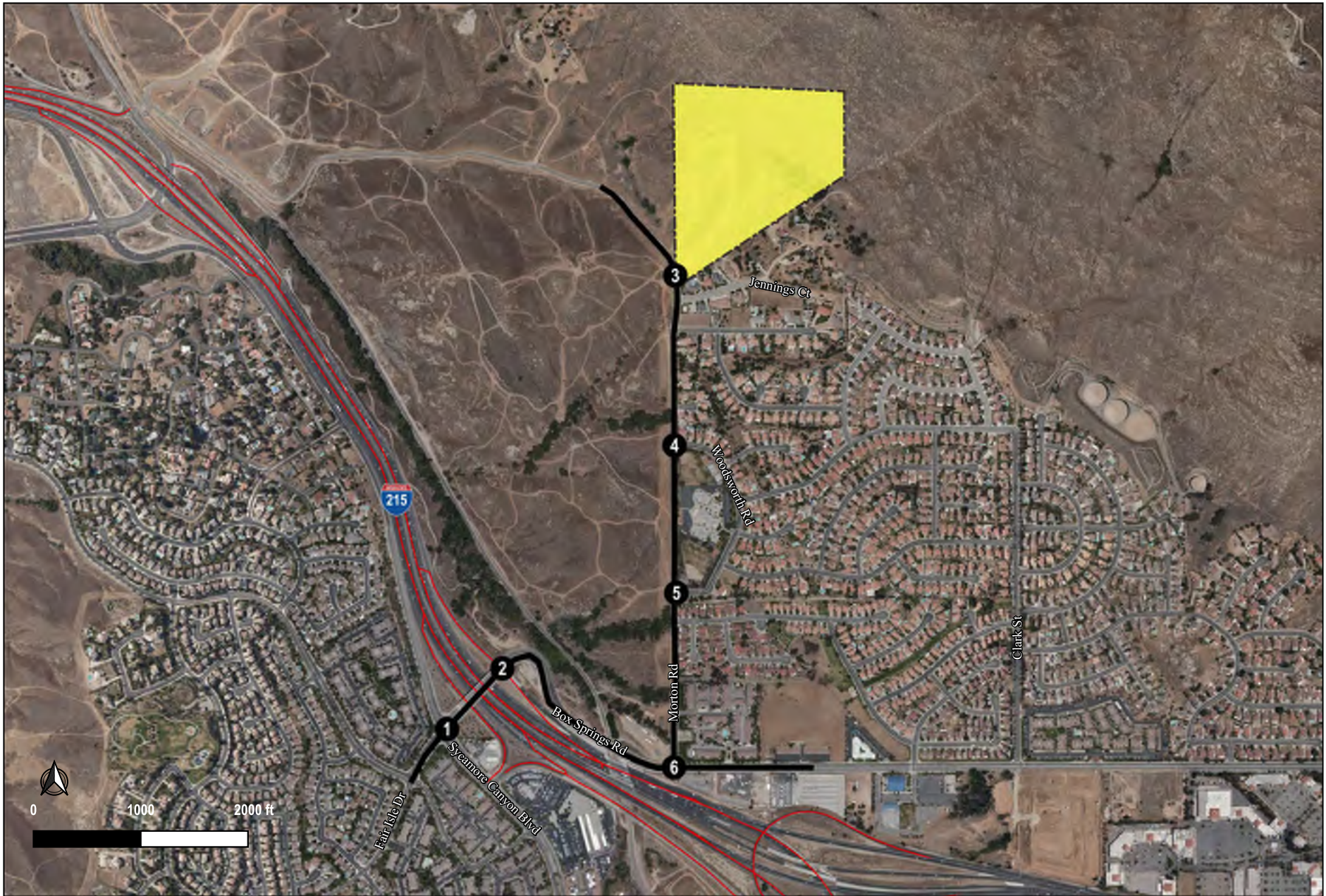
Legend

 Project Site

FIGURE 1

**Gateway Highlands
Regional Project Location**





Legend

- Project Site
- Study Area Intersections



the transportation solutions company

FIGURE 2
Gateway Highlands
Study Area Intersections

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)



Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

FIGURE 3

Gateway Highlands
Site Plan



2.1 Project Trip Generation

The project includes 108 detached condominiums, however, to provide a conservative estimate of the trips generated by the project, the trip generation is based on rates from the Institute of Transportation Engineers' (ITE) *Trip Generation* (10th Edition) for Land Use 210 - "Single-Family Detached Housing". Table A shows the project trip generation for the a.m. peak hour, p.m. peak hour, and weekday. As shown in Table A, the project is forecast to generate 80 trips in the a.m. peak hour, 107 trips in the p.m. peak hour, and 1,020 daily trips.

2.2 Project Trip Distribution & Assignment

Trip distribution patterns for the proposed project were developed based on discussion with City staff and the location of local and regional destinations. It should be noted that Morton Road to the north of project has been closed off to through traffic since the opening of the Moreno Valley/March Field Station Metrolink, therefore, the project trips were routed to the south on Morton Road and distributed to Box Springs Road. Figure 4 illustrates the trip distribution for project trips at the study area intersections. The project trip generation was applied to the trip distribution patterns for the project to develop trip assignments for new project trips. Figure 5 illustrates the project trip assignment at the study intersections.

3.0 LOS DEFINITIONS, PROCEDURES, AND THRESHOLDS

Level of service (LOS) is a measure of the quality of operational conditions within a traffic stream, and is generally expressed in terms of such measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Levels range from A to F, with LOS A representing excellent (free-flow) conditions and LOS F representing extreme congestion. Consistent with City guidelines, the Highway Capacity Manual (HCM) procedures have been used to evaluate levels of service. This section discusses the LOS definitions, procedures, and thresholds used in this report.

3.1 Intersection Levels of Service

The analysis of traffic operations at intersections was conducted according to the Highway Capacity Manual 6th Edition (HCM) delay methodologies using Synchro 11 software, which is described in the Highway Capacity Manual (Transportation Research Board, Washington, D.C., November 2016). Under the HCM methodology, LOS for signalized intersections is based on the average delay experienced by vehicles traveling through an intersection, whereas for un-signalized intersections, the LOS is based on the worst approach where the minor leg has a shared lane and on the worst movement where the minor leg has dedicated turn lanes. Table B presents a brief description of each level of service letter grade, as well as the range of delays associated with each grade.

3.2 Levels of Service Standards

The City of Moreno Valley General Plan has established minimum Level of Service standards for its roadway network. LOS D is applicable to intersections that are adjacent to freeway on/off ramps and adjacent to employment generating lands uses. LOS C is applicable to all other intersections. For boundary intersections, LOS D is assumed to be acceptable. Further, the City of Moreno Valley identifies the following signalized intersection operating requirements:

- Any signalized study intersection operating at acceptable LOS without project traffic in which the addition of project traffic causes the intersection to degrade to unacceptable LOS shall identify improvements to provide acceptable LOS.
- Any signalized study intersection that is operating at unacceptable LOS without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.

Table A - Project Trip Generation

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Future Use								
Single-Family Residential								
Trip Generation Rates ¹		0.19	0.56	0.74	0.62	0.37	0.99	9.44
Trip Generation	108 DU	20	60	80	67	40	107	1,020
Total Trip Generation		20	60	80	67	40	107	1,020

Notes: DU = Dwelling Unit

¹ Trip generation based on rates for Land Use 210 - "Single-Family Detached Housing" from Institute of Transportation Engineers' (ITE) *Trip Generation* (10th Edition).

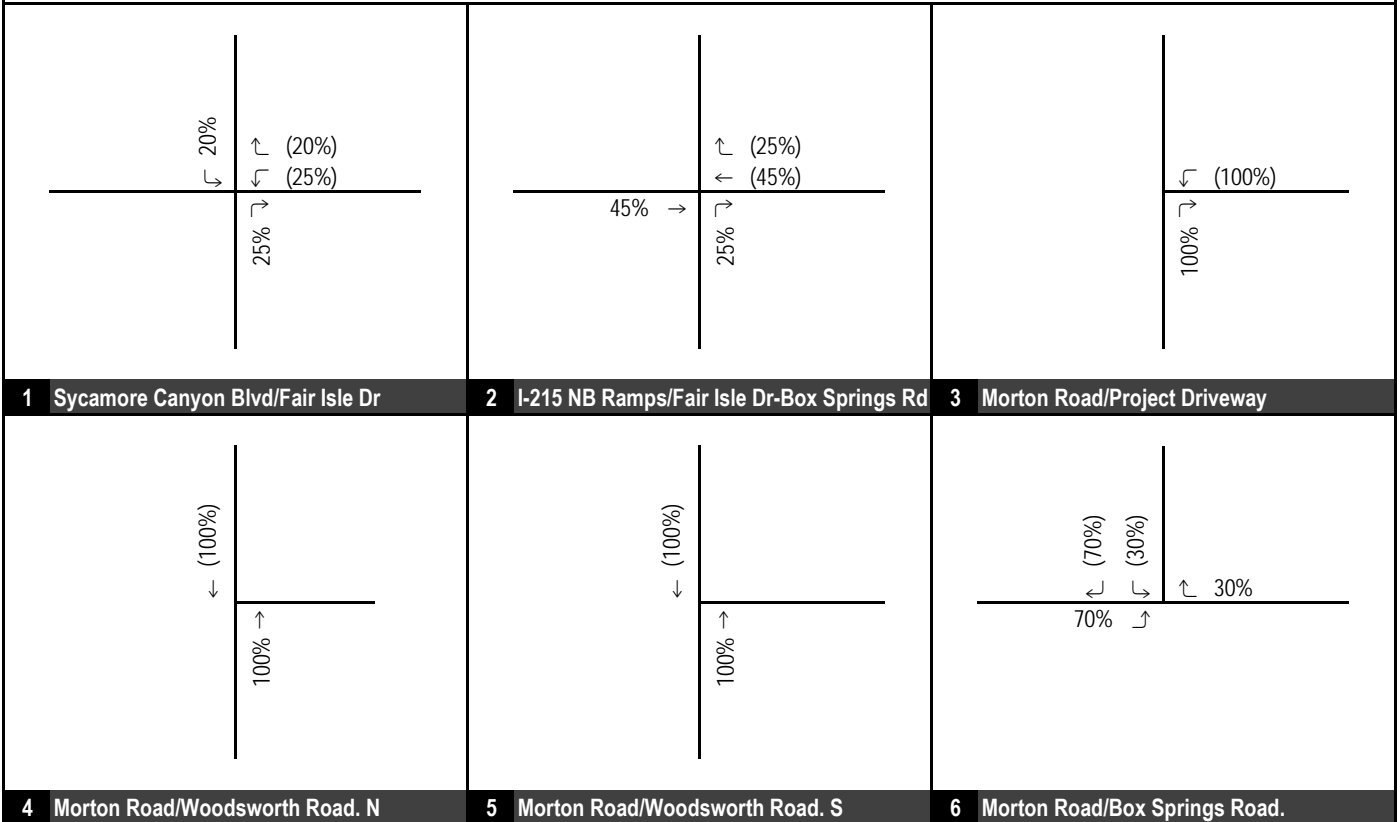


FIGURE 4

XXX%(YYY%) Inbound%(Outbound%) Percent



Gateway Highlands
Project Trip Distribution

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

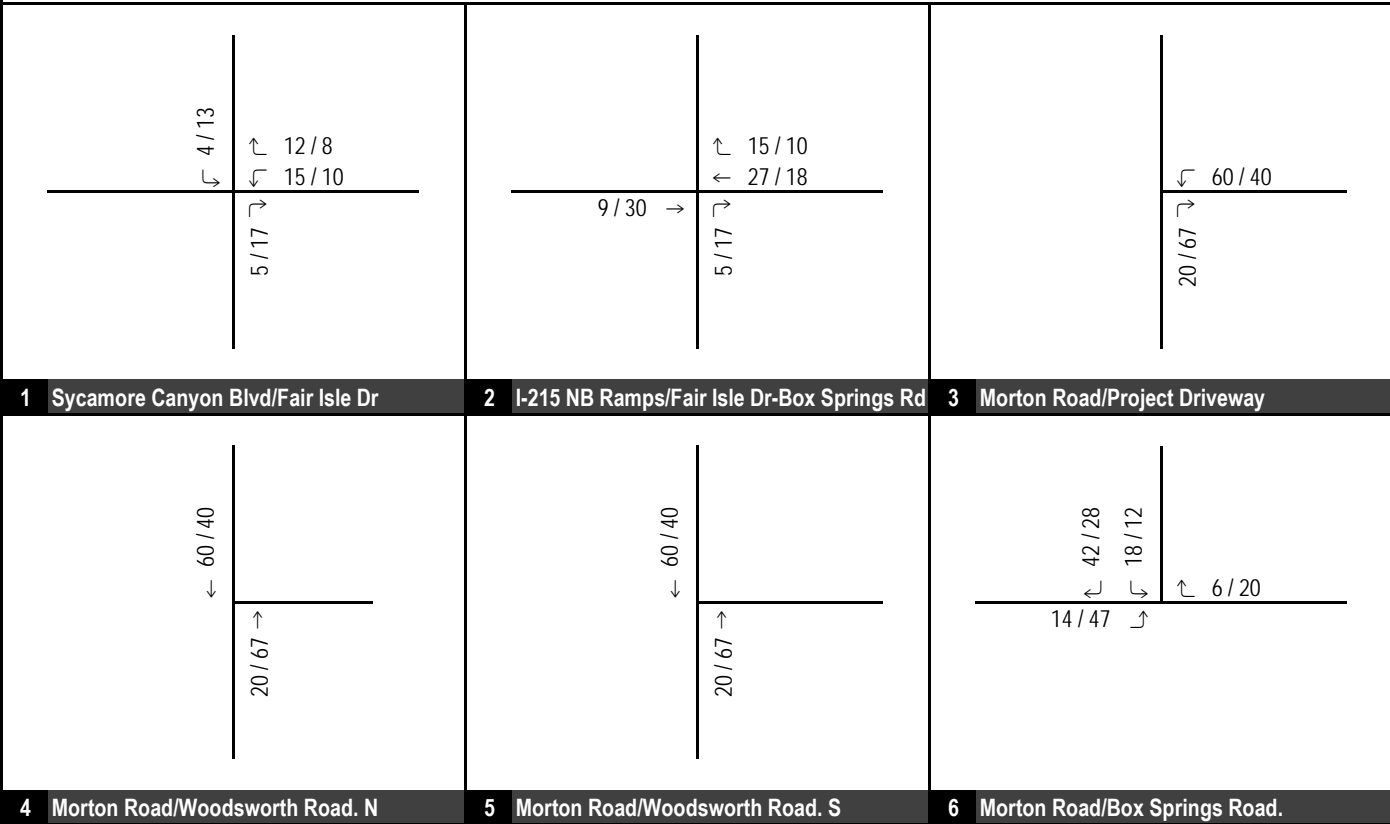


FIGURE 5

XXX / YYY AM / PM Peak Hour Trips



**Gateway Highlands
Project Trip Assignment**

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Table B: Level of Service Criteria

LOS	Description of Drivers' Perception and Traffic Operation	HCM (Delay in Seconds)	
		Unsignalized	Signalized
A	This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤ 10	≤ 10
B	This level is assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	> 10 and ≤ 15	> 10 and ≤ 20
C	This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	> 15 and ≤ 25	> 20 and ≤ 35
D	This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	> 25 and ≤ 35	> 35 and ≤ 55
E	This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	> 35 and ≤ 50	> 55 and ≤ 80
F	This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 50	> 80

Source: Highway Capacity Manual 6th Edition

For unsignalized intersections, the following criteria shall be used when identifying operational deficiencies. An operation improvement would be required if the study determines that either section a) or both sections b) and c) occur:

a) The addition of project traffic causes the intersection to degrade from an acceptable LOS to unacceptable LOS.

OR

b) The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project at an acceptable LOS.

AND

c) The intersection meets the peak hour traffic signal warrant after the addition of project traffic.

The City of Riverside General Plan considers LOS D to be maintained at intersections of Collector or higher classification. Further, for projects that propose uses above that contained in the General Plan, operational improvements are required when the addition of project traffic causes either peak hour LOS to degrade from acceptable LOS (A through D) to unacceptable LOS (LOS E or F) or the peak hour delay to increase as follows:

- LOS A/B: By 10 seconds;
- LOS C: By 8 seconds;
- LOS D: By 5 seconds;
- LOS E: By 2 seconds;
- LOS F: By 1 second.

4.0 VOLUME DEVELOPMENT METHODOLOGY

Forecast traffic volumes at study intersections were developed consistent with the City's guidelines. This section discusses the volume development methodology used to forecast future traffic volumes.

4.1 Existing Without Project Traffic Volumes

Existing traffic volumes are based on peak hour intersection turn movement counts collected by Counts Unlimited Inc. in January 2021. Due to the Covid-19 pandemic, the peak hour traffic volumes at the study area intersections collected in January 2021 may be less than counts collected before the pandemic. A comparison of historic counts within the study area to current counts was conducted to determine which were higher. Counts collected in 2019 at the intersection of Day Street/Box Springs Road were found to be higher than the counts collected in 2021 at the same location. Therefore, the counts collected in 2019 were used to balance the counts collected in 2021. Count sheets are contained in Appendix B. Detailed volume development worksheets are included in Appendix C.

4.2 Project Completion Without Project Traffic Volumes

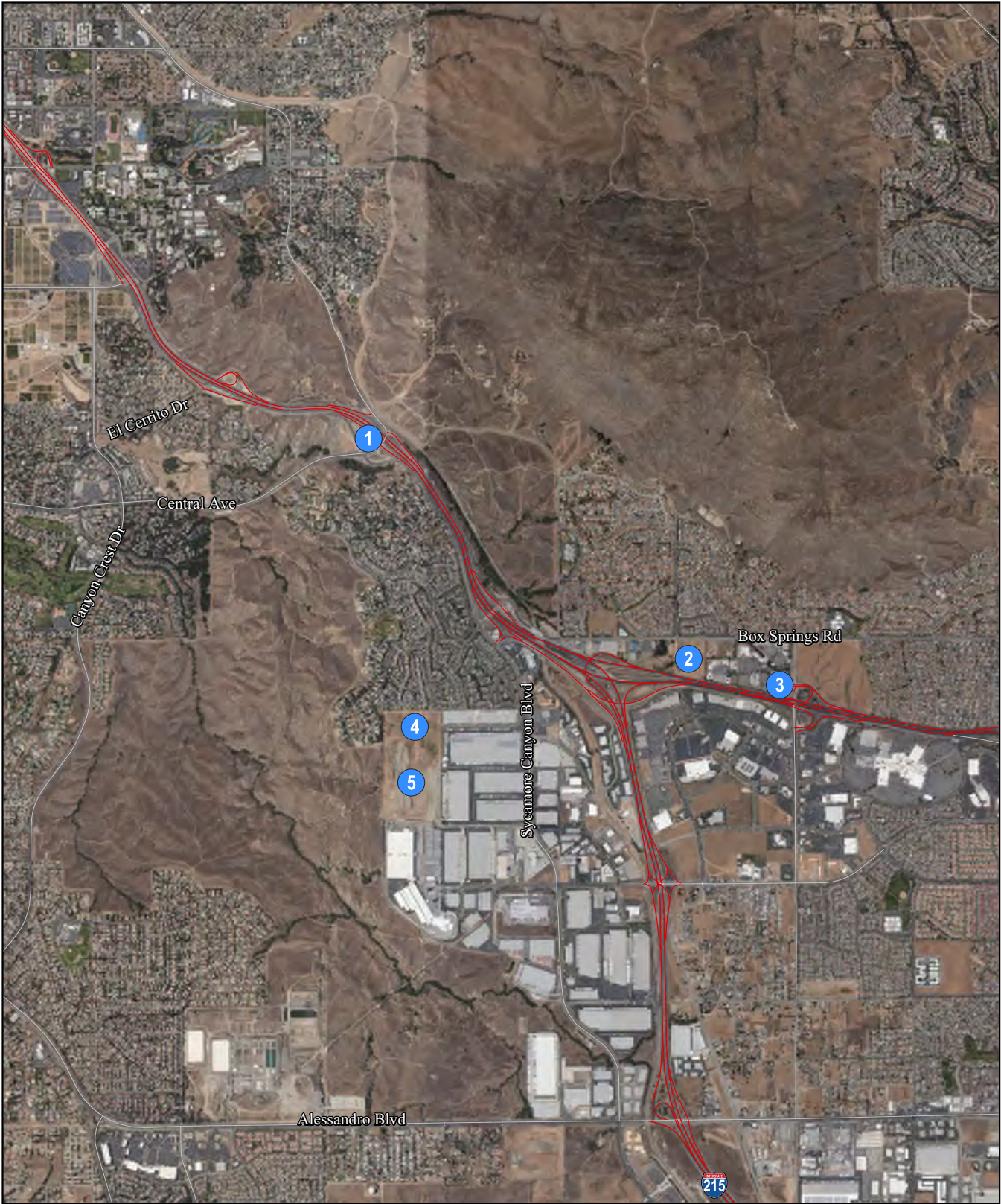
Project Completion without project peak hour traffic volumes were developed by applying an annual growth rate of 2 percent per year for 2 years to the existing volumes and adding cumulative project trips. The cumulative projects included in the analysis are illustrated in Figure 6. Table C lists the cumulative projects included in the analysis. The cumulative projects are anticipated to generate 504 a.m. peak hour PCE trips, 632 p.m. peak hour PCE trips, and 8,356 daily PCE trips.

4.3 With Project Traffic Volumes

Traffic volumes for existing, project completion with project conditions were developed by adding the trip assignment to the corresponding without project peak hour traffic volumes.

5.0 EXISTING CONDITIONS

This section discusses the existing transportation conditions in the study area.



Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

FIGURE 6

Legend

 Project Site

 Cumulative Projects

**Gateway Highlands
Cumulative Project Locations**





Table C: Cumulative Projects Trip Generation

Project Number	Land Use	Quantity	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
				In	Out	Total	In	Out	Total	
1	Multifamily Residential ¹									
	Trip Generation Rates	237	DU	0.09	0.27	0.36	0.27	0.17	0.44	5.44
	Trip Generation			22	63	85	64	41	104	1,289
2	Multifamily Residential ¹									
	Trip Generation Rates	266	DU	0.09	0.27	0.36	0.27	0.17	0.44	5.44
	Trip Generation			25	71	96	71	46	117	1,447
3	Supermarket ²									
	Trip Generation Rates	23	TSF	2.29	1.53	3.82	4.71	4.53	9.24	106.78
	Trip Generation			53	35	88	108	104	213	2,456
	Pass-By			0	0	0	(38)	(39)	(77)	(77)
	Net Trips			53	35	88	70	66	136	2,379
4	Warehouse ³									
	Passenger Cars	361	TSF	30	9	39	12	31	43	390
	Truck PCEs			50	13	63	19	49	68	607
	Total PCE Trips			80	22	102	31	80	111	997
5	Warehouse ⁴									
	Passenger Cars	1,013	TSF	39	12	51	18	45	63	878
	Truck PCEs			64	18	82	30	71	101	1,365
	Total PCE Trips			103	30	133	48	116	164	2,243
Total Trip Generation				283	221	504	284	348	632	8,356

¹ Rates based on Land Use 220 - "Multifamily (Mid-Rise)" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

² Rates based on Land Use 850 - "Supermarket" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

³ Rates based on Land Use 150 "Warehousing" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

⁴ Rates based on Land Use 154 - "High-Cube Transload and Short-Term Storage Warehouse" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

5.1 Existing Roadway Conditions

Regional access to the project site is provided by SR-60 to the north. Local access to the project will be provided by the following roadways:

- **Box Springs Road** is oriented in the east-west direction and is a 4-lane roadway within the project study area. The City's circulation plan designates Box Springs Road as a "Minor Arterial".
- **Sycamore Canyon Road** is oriented in the north-south direction and is a 4-lane roadway within the project study area. The City of Riverside's circulation plan designates Sycamore Canyon Road as a 4-lane "110-Foot Arterial" south of Fair Isle Drive and as a 4-lane "88-Foot Arterial" north of Fair Isle Drive.
- **Fair Isle Drive** is oriented in the east-west direction and is a 4-lane roadway within the project study area. The City of Riverside's circulation element designates Fair Isle Drive as a "66-Foot Collector".

5.2 Existing Transit Service

Public transportation services within the City of Moreno Valley includes bus transit service provided by the Riverside Transit Agency (RTA) and commuter rail transportation (Metrolink). These services are further described below.

Bus Service. Public transportation in the City of Moreno Valley is provided by RTA, which is the regional transit operator in Riverside County.

- **Route 16** provides service on Box Springs Road. Route 16 has major stops at the Moreno Valley Mall, UCE at Bannockburn, and University Avenue at University Village. Route 16 operates at 30-minute headways on weekdays and weekends.

Commuter Rail Service. Commuter rail service is provided by Metrolink, which is operated by the Southern California Regional Rail Authority (SCRRA). Metrolink train service is available between the counties of Ventura, Los Angeles, San Bernardino, Orange, Riverside, and north San Diego. The area is served by the Moreno Valley/March Field Metrolink Station. The Moreno Valley/March Field Station is the nearest Metrolink station to the project site and is approximately 3 miles south of the project site.

Figure 7 illustrates the existing transit services. As shown in Figure 7, the closest transit route to the project is located on Box Springs Road via Route 16.

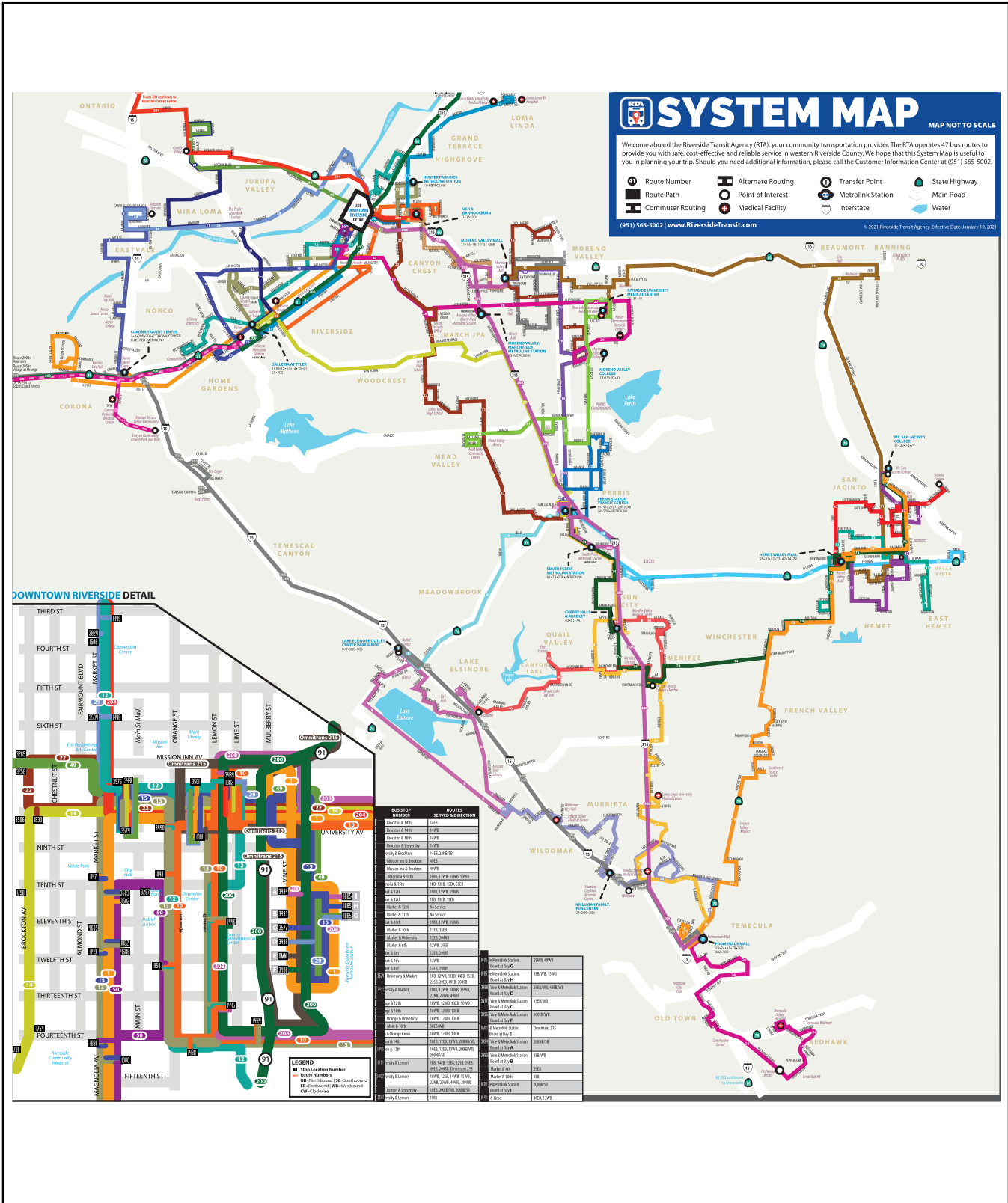
5.3 Existing Pedestrian & Bicycle Facilities

The City's Bicycle Master Plan includes three types of facilities and are discussed below:

- **Class I Multi-use Paths** Class I facilities are physically separated from motor vehicle routes, with exclusive rights-of-way for non-motorized users like cyclists and pedestrians and with motor vehicle cross flows kept to a minimum. Class I facilities are often important commuter connections and any proposed paths must be designed for multipurpose use.
- **Class II Bicycle Lanes** Class II facilities provide an exclusive roadway space for cyclists, demarcated through pavement marking and signage. Bicycle lanes must be one-way facilities and carry bicycle traffic in the same direction as the adjacent motor vehicle traffic. They are typically located along the right side of the street, between the adjacent travel lane and curb, road edge or parking lane.
- **Class III Bicycle Routes** Class III facilities are suggested bicycle routes marked by signs designating a preferred route between destinations. They are recommended where traffic volumes and roadway speeds are fairly low.

Figure 8 illustrates the existing bicycle facilities within the City. As shown in Figure 8, there are existing Class III bike routes on Box Springs Road. Pedestrian circulation in Moreno Valley is primarily provided via trails and sidewalks. The existing pedestrian sidewalks adjacent to the project are illustrated in Figure 9. As illustrated in Figure 9, there are sidewalks on the east side of Morton Road from Jennings Court to Box Springs Road.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



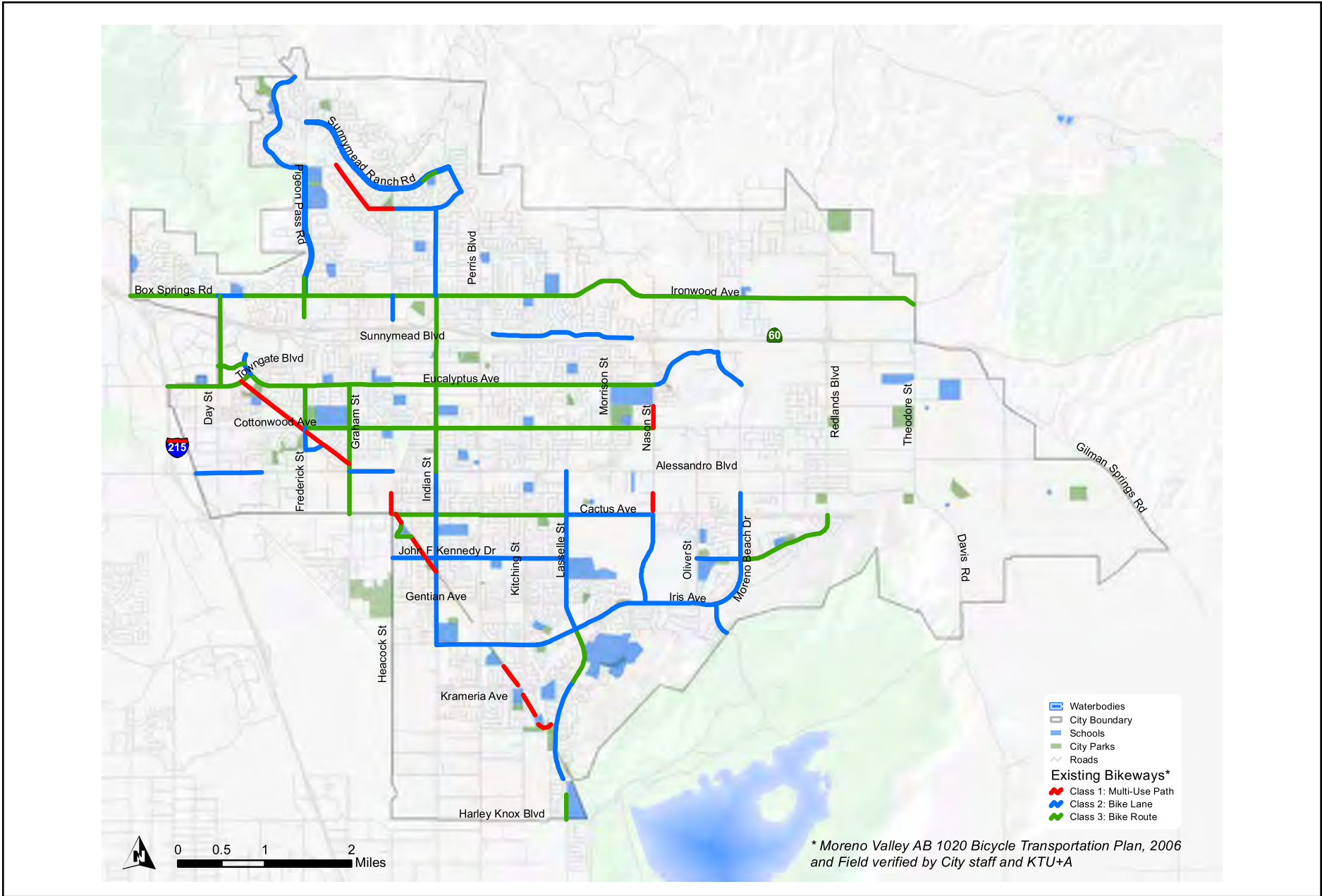
Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Source: RTA (January,2020)

FIGURE 7



Gateway Highlands Residential Transit



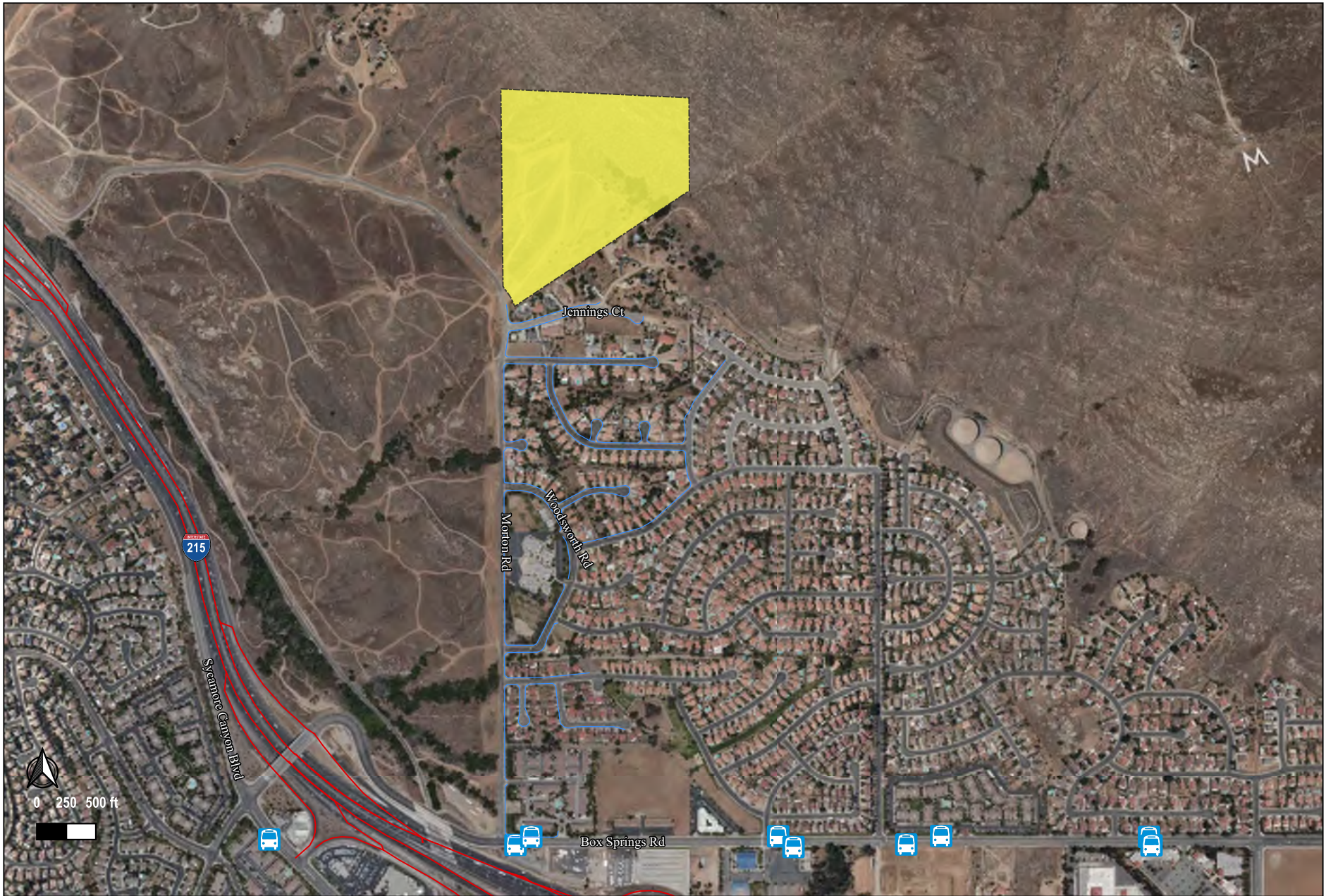
Source: City of Moreno Valley Bicycle Master Plan

FIGURE 8

Gateway Highlands Residentail Bike Lanes

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)





Legend
 Project Site
 Bus Stops



FIGURE 9

Gateway Highlands Residential Pedestrian Facilities

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

5.4 Existing Levels of Service

An intersection level of service analysis was conducted for existing conditions to determine current circulation system performance. Figure 10 shows the existing lane geometrics and stop controls at the study intersections. The existing traffic volumes at study intersections are illustrated in Figure 11. Detailed volume development worksheets are included in Appendix C. The existing levels of service for the study area intersections are summarized in Table D. Level of service calculation worksheets are contained in Appendix D. As shown in Table D, all study area intersections are currently operating at satisfactory levels of service with the exception of the following:

- Sycamore Canyon Road/Fair Isle Drive (a.m. peak hour).

6.0 PROJECT COMPLETION CONDITIONS

This section discusses project completion transportation conditions in the study area. It is anticipated that the project will open in 2023.

6.1 Project Completion Roadway Conditions

Project completion roadway conditions are assumed to be the same as those under existing conditions.

6.2 Project Completion Transit Service

Transit service under project completion conditions are anticipated to remain the same as under existing conditions.

6.3 Project Completion Pedestrian & Bicycle Facilities

Pedestrian and bicycle facilities under project completion conditions are anticipated to remain the same as under existing conditions, however, the City of Moreno Valley bicycle master plan is proposing a Class III Bike Route on Morton Road north of Box Springs Road and also converting the Class III Bike Route to a Class II Bike Lane on Box Springs Road. Figure 12 shows the City's bicycle master plan.

6.4 Project Completion Without Project Levels of Service

An intersection level of service analysis was conducted for project completion without project conditions to determine circulation system performance. Project completion without project traffic volumes at study intersections are shown in Figure 13. Project completion without project levels of service for the study area intersections are summarized in Table E. Detailed volume development worksheets are included in Appendix C. Level of service calculation worksheets are contained in Appendix D. As shown in Table E, all study area intersections are forecast to operate at satisfactory levels of service with the exception of the following:

- Sycamore Canyon Road/Fair Isle Drive (a.m. and p.m. peak hours).

6.5 Project Completion With Project Levels of Service

An intersection level of service analysis was conducted for project completion with project conditions to determine circulation system performance. Project completion with project traffic volumes at study intersections are shown in Figure 14. The project completion with project levels of service for the study area intersections are summarized in Table E. Detailed volume development worksheets are included in Appendix C. Level of service calculation worksheets are contained in Appendix D. As shown in Table E, all study intersections are forecast to operate at satisfactory levels of service with the exception of the following:

- Sycamore Canyon Road/Fair Isle Drive (a.m. and p.m. peak hours).

This intersection exceeds the peak hour delay increase for LOS E (2 seconds or more), when comparing the without project delay to the with project delay. Operational improvements to restore the LOS to pre-project conditions are included in the circulation improvements section.

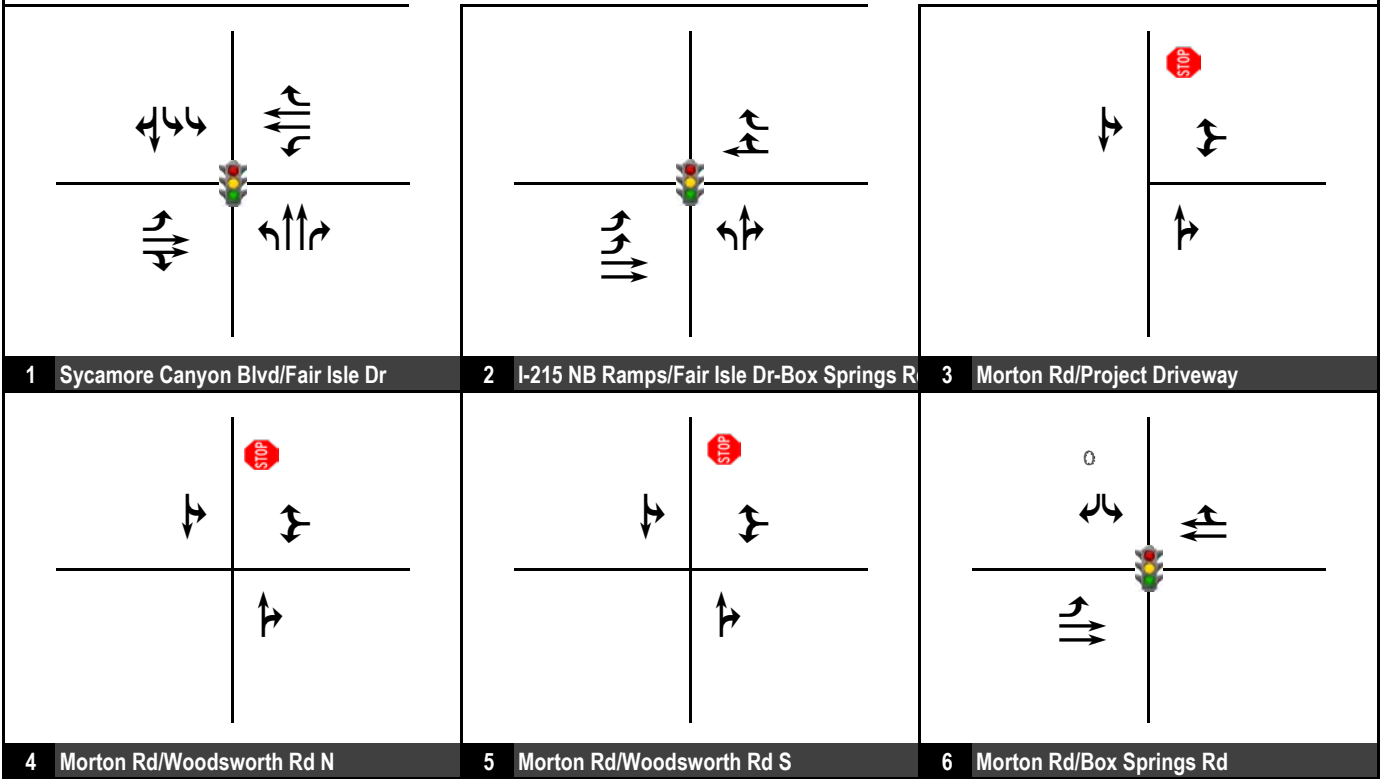


FIGURE 10

Legend

- Signal
- Stop Sign

Gateway Highlands Residential
Existing Intersection Lane Geometrics and Stop Control



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



<table border="1"> <tr> <td>6 / 36</td> <td>208 / 469</td> <td>124 / 460</td> <td>438 / 125</td> </tr> <tr> <td>60 / 15</td> <td>143 / 119</td> <td>141 / 115</td> <td>78 / 105</td> </tr> <tr> <td>165 / 130</td> <td>1092 / 339</td> <td>662 / 662</td> <td>201 / 120</td> </tr> </table>	6 / 36	208 / 469	124 / 460	438 / 125	60 / 15	143 / 119	141 / 115	78 / 105	165 / 130	1092 / 339	662 / 662	201 / 120	<table border="1"> <tr> <td>608 / 426</td> <td>321 / 816</td> <td>985 / 299</td> <td>589 / 238</td> </tr> <tr> <td>128 / 113</td> <td>9 / 2</td> <td>6 / 9</td> <td></td> </tr> </table>	608 / 426	321 / 816	985 / 299	589 / 238	128 / 113	9 / 2	6 / 9		<p>Future Intersection</p>				
6 / 36	208 / 469	124 / 460	438 / 125																							
60 / 15	143 / 119	141 / 115	78 / 105																							
165 / 130	1092 / 339	662 / 662	201 / 120																							
608 / 426	321 / 816	985 / 299	589 / 238																							
128 / 113	9 / 2	6 / 9																								
<p>1 Sycamore Canyon Blvd/Fair Isle Dr</p>	<p>2 I-215 NB Ramps/Fair Isle Dr-Box Springs Rd</p>	<p>3 Morton Rd/Project Driveway</p>																								
<table border="1"> <tr> <td>56 / 22</td> <td>2 / 2</td> <td>6 / 2</td> <td>2 / 2</td> </tr> <tr> <td>28 / 39</td> <td>11 / 15</td> <td></td> <td></td> </tr> </table>	56 / 22	2 / 2	6 / 2	2 / 2	28 / 39	11 / 15			<table border="1"> <tr> <td>51 / 31</td> <td>2 / 0</td> <td>0 / 1</td> <td>116 / 45</td> </tr> <tr> <td>41 / 38</td> <td>26 / 48</td> <td></td> <td></td> </tr> </table>	51 / 31	2 / 0	0 / 1	116 / 45	41 / 38	26 / 48			<table border="1"> <tr> <td>174 / 48</td> <td>36 / 43</td> <td>13 / 27</td> <td>1400 / 489</td> </tr> <tr> <td>66 / 100</td> <td>261 / 725</td> <td></td> <td></td> </tr> </table>	174 / 48	36 / 43	13 / 27	1400 / 489	66 / 100	261 / 725		
56 / 22	2 / 2	6 / 2	2 / 2																							
28 / 39	11 / 15																									
51 / 31	2 / 0	0 / 1	116 / 45																							
41 / 38	26 / 48																									
174 / 48	36 / 43	13 / 27	1400 / 489																							
66 / 100	261 / 725																									
<p>4 Morton Rd/Woodsworth Rd N</p>	<p>5 Morton Rd/Woodsworth Rd S</p>	<p>6 Morton Rd/Box Springs Rd</p>																								

FIGURE 11

XXX / YYY AM / PM Peak Hour Traffic Volumes

Gateway Highlands Residential Existing Peak Hour Traffic Volumes





Table D: Existing Levels of Service

Intersection	LOS Std.	Jurisdiction	Control	Existing Conditions			
				AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1 . Sycamore Canyon Blvd/Fair Isle Dr	D	Riverside	Signal	58.2	E *	33.3	C
2 . I-215 NB Ramps/Fair Isle Dr-Box Springs Rd	D	Caltrans	Signal	26	C	16.9	B
3 . Morton Rd/Project Driveway	C	Moreno Valley	TSWC	<i>Future Intersection</i>			
4 . Morton Rd/Woodsworth Rd N	C	Moreno Valley	TSWC	8.7	A	8.7	A
5 . Morton Rd/Woodsworth Rd S	C	Moreno Valley	TSWC	9	A	9.1	A
6 . Morton Rd/Box Springs Rd	D	Moreno Valley	Signal	13	B	12	B

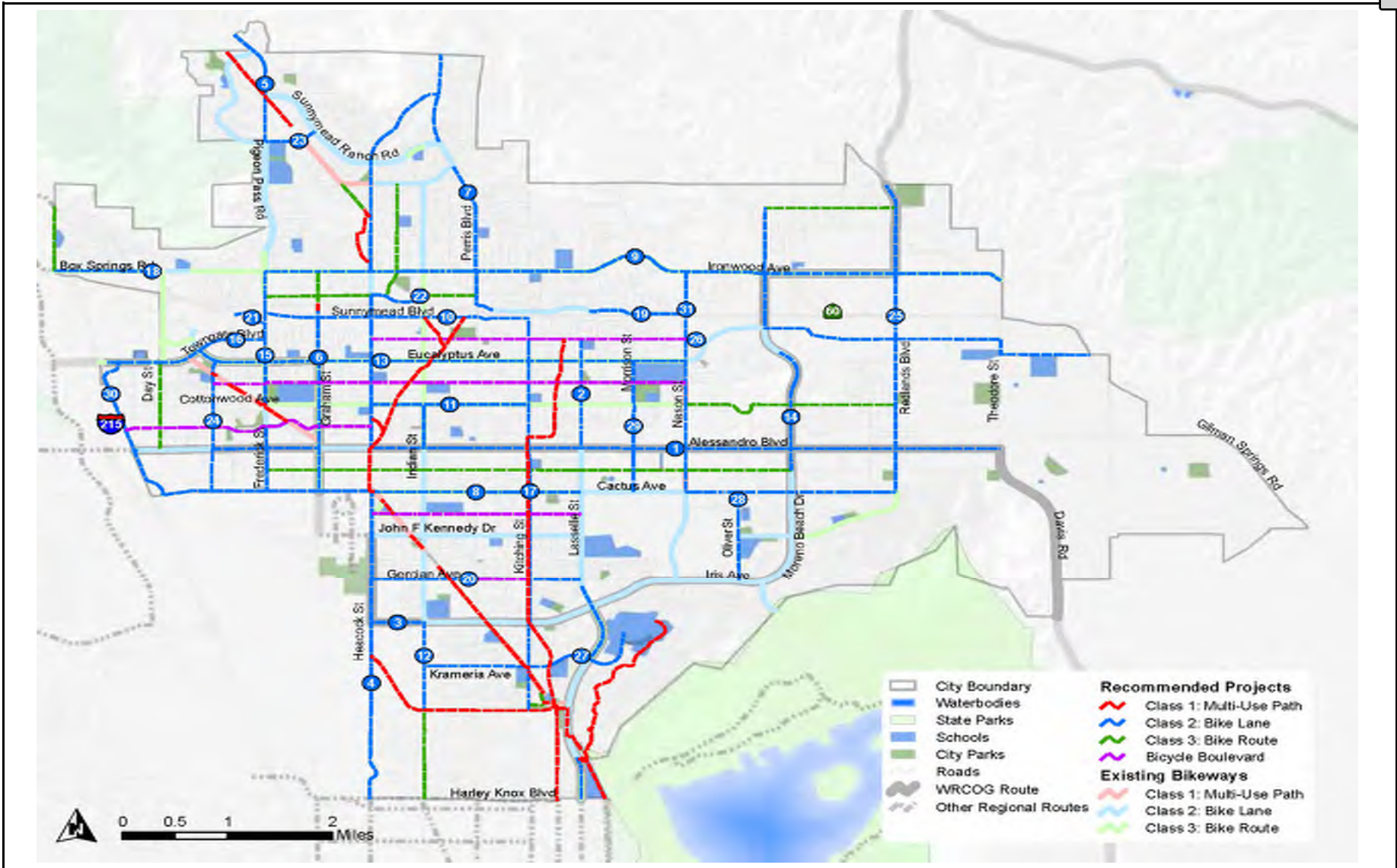
Notes:

* Exceeds LOS Standard

TSWC = Two-Way Stop Control; For TSWC intersections, reported delay is for worst-case movement.

LOS = Level of Service

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Source: City of Moreno Valley Bicycle Master Plan

FIGURE 12

Gateway Highlands Residential
City of Moreno Valley Bicycle Master Plan



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



<table border="1"> <tr> <td>↑ 3 / 32</td> <td>↓ 112 / 421</td> <td>↘ 58 / 309</td> <td>↗ 878 / 224</td> </tr> <tr> <td>↖ 29 / 14</td> <td>↗ 60 / 81</td> <td>↘ 73 / 104</td> <td>↖ 418 / 217</td> </tr> <tr> <td>↖ 81 / 119</td> <td>↗ 533 / 313</td> <td>↘ 307 / 558</td> <td></td> </tr> </table>	↑ 3 / 32	↓ 112 / 421	↘ 58 / 309	↗ 878 / 224	↖ 29 / 14	↗ 60 / 81	↘ 73 / 104	↖ 418 / 217	↖ 81 / 119	↗ 533 / 313	↘ 307 / 558		<table border="1"> <tr> <td>↖ 314 / 453</td> <td>↗ 399 / 863</td> <td>↘ 69 / 103</td> <td>↖ 944 / 369</td> </tr> <tr> <td>↗ 4 / 2</td> <td>↘ 9 / 16</td> <td></td> <td>↖ 548 / 284</td> </tr> </table>	↖ 314 / 453	↗ 399 / 863	↘ 69 / 103	↖ 944 / 369	↗ 4 / 2	↘ 9 / 16		↖ 548 / 284	<p>Future Intersection</p>				
↑ 3 / 32	↓ 112 / 421	↘ 58 / 309	↗ 878 / 224																							
↖ 29 / 14	↗ 60 / 81	↘ 73 / 104	↖ 418 / 217																							
↖ 81 / 119	↗ 533 / 313	↘ 307 / 558																								
↖ 314 / 453	↗ 399 / 863	↘ 69 / 103	↖ 944 / 369																							
↗ 4 / 2	↘ 9 / 16		↖ 548 / 284																							
<p>1 Sycamore Canyon Blvd/Fair Isle Dr</p>	<p>2 I-215 NB Ramps/Fair Isle Dr-Box Springs Rd</p>	<p>3 Morton Rd/Project Driveway</p>																								
<table border="1"> <tr> <td>↖ 30 / 24</td> <td>↗ 1 / 2</td> <td>↘ 3 / 2</td> <td></td> </tr> <tr> <td>↖ 16 / 37</td> <td>↗ 5 / 14</td> <td></td> <td></td> </tr> </table>	↖ 30 / 24	↗ 1 / 2	↘ 3 / 2		↖ 16 / 37	↗ 5 / 14			<table border="1"> <tr> <td>↖ 28 / 31</td> <td>↗ 1 / 0</td> <td>↘ 0 / 1</td> <td>↖ 56 / 40</td> </tr> <tr> <td>↗ 22 / 36</td> <td>↘ 12 / 43</td> <td></td> <td></td> </tr> </table>	↖ 28 / 31	↗ 1 / 0	↘ 0 / 1	↖ 56 / 40	↗ 22 / 36	↘ 12 / 43			<table border="1"> <tr> <td>↖ 83 / 43</td> <td>↗ 52 / 51</td> <td>↘ 16 / 38</td> <td></td> </tr> <tr> <td>↖ 33 / 88</td> <td>↗ 376 / 792</td> <td>↘ 1408 / 610</td> <td></td> </tr> </table>	↖ 83 / 43	↗ 52 / 51	↘ 16 / 38		↖ 33 / 88	↗ 376 / 792	↘ 1408 / 610	
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<p>4 Morton Rd/Woodsworth Rd N</p>	<p>5 Morton Rd/Woodsworth Rd S</p>	<p>6 Morton Rd/Box Springs Rd</p>																								

FIGURE 13

XXX / YYY AM / PM Peak Hour Traffic Volumes

Gateway Highlands Residential Project Completion Without Project Peak Hour Traffic Volumes



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table E: Project Completion Levels of Service

Intersection	LOS Std.	Jurisdiction	Control	Without Project				With Project			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 . Sycamore Canyon Blvd/Fair Isle Dr	D	Riverside	Signal	69.3	E *	56.3	E *	72	E *	60.5	E *
2 . I-215 NB Ramps/Fair Isle Dr-Box Springs Rd	D	Caltrans	Signal	32.5	C	18.1	B	34.4	C	18.3	B
3 . Morton Rd/Project Driveway	C	Moreno Valley	TSWC	<i>Future Intersection</i>				8.9	A	8.9	A
4 . Morton Rd/Woodsworth Rd N	C	Moreno Valley	TSWC	8.7	A	8.8	A	9.1	A	9.4	A
5 . Morton Rd/Woodsworth Rd S	C	Moreno Valley	TSWC	9	A	9.2	A	9.6	A	9.9	A
6 . Morton Rd/Box Springs Rd	D	Moreno Valley	Signal	13.9	B	11.8	B	15.4	B	13.6	B

Notes:

- * Exceeds LOS Standard
- TWSC = Two-Way Stop Control; For TWSC intersections, reported delay is for worst-case movement.
- LOS = Level of Service

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



<table border="1"> <tr> <td>↖ 3 / 32</td> <td>↗ 112 / 421</td> <td>↖ 62 / 322</td> <td>↖ 890 / 232</td> </tr> <tr> <td>↘ 29 / 14</td> <td>↘ 60 / 81</td> <td>↘ 73 / 104</td> <td>↘ 157 / 185</td> </tr> <tr> <td>↙ 81 / 119</td> <td>↙ 533 / 313</td> <td>↙ 312 / 575</td> <td>↙ 433 / 227</td> </tr> </table>	↖ 3 / 32	↗ 112 / 421	↖ 62 / 322	↖ 890 / 232	↘ 29 / 14	↘ 60 / 81	↘ 73 / 104	↘ 157 / 185	↙ 81 / 119	↙ 533 / 313	↙ 312 / 575	↙ 433 / 227	<table border="1"> <tr> <td>↖ 314 / 453</td> <td>↗ 408 / 893</td> <td>↖ 959 / 379</td> <td>↗ 575 / 302</td> </tr> <tr> <td>↘ 69 / 103</td> <td>↘ 4 / 2</td> <td>↘ 14 / 33</td> <td></td> </tr> </table>	↖ 314 / 453	↗ 408 / 893	↖ 959 / 379	↗ 575 / 302	↘ 69 / 103	↘ 4 / 2	↘ 14 / 33		<p>Future Intersection</p>
↖ 3 / 32	↗ 112 / 421	↖ 62 / 322	↖ 890 / 232																			
↘ 29 / 14	↘ 60 / 81	↘ 73 / 104	↘ 157 / 185																			
↙ 81 / 119	↙ 533 / 313	↙ 312 / 575	↙ 433 / 227																			
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<p>1 Sycamore Canyon Blvd/Fair Isle Dr</p>	<p>2 I-215 NB Ramps/Fair Isle Dr-Box Springs Rd</p>	<p>3 Morton Rd/Project Driveway</p>																				
<table border="1"> <tr> <td>↖ 90 / 64</td> <td>↗ 1 / 2</td> <td>↖ 3 / 2</td> <td>↖ 36 / 104</td> <td>↗ 5 / 14</td> </tr> </table>	↖ 90 / 64	↗ 1 / 2	↖ 3 / 2	↖ 36 / 104	↗ 5 / 14	<table border="1"> <tr> <td>↖ 88 / 71</td> <td>↗ 1 / 0</td> <td>↖ 0 / 1</td> <td>↗ 56 / 40</td> <td>↖ 42 / 103</td> <td>↗ 12 / 43</td> </tr> </table>	↖ 88 / 71	↗ 1 / 0	↖ 0 / 1	↗ 56 / 40	↖ 42 / 103	↗ 12 / 43	<table border="1"> <tr> <td>↖ 125 / 71</td> <td>↗ 70 / 63</td> <td>↖ 22 / 58</td> <td>↗ 1408 / 610</td> <td>↖ 47 / 135</td> <td>↗ 376 / 792</td> </tr> </table>	↖ 125 / 71	↗ 70 / 63	↖ 22 / 58	↗ 1408 / 610	↖ 47 / 135	↗ 376 / 792			
↖ 90 / 64	↗ 1 / 2	↖ 3 / 2	↖ 36 / 104	↗ 5 / 14																		
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<p>4 Morton Rd/Woodsworth Rd N</p>	<p>5 Morton Rd/Woodsworth Rd S</p>	<p>6 Morton Rd/Box Springs Rd</p>																				

FIGURE 14

XXX / YYY AM / PM Peak Hour Traffic Volumes

Gateway Highlands Residential Project Completion With Project Peak Hour Traffic Volumes



7.0 CIRCULATION IMPROVEMENTS

Circulation improvements have been recommended at intersection where the project exceeds the appropriate jurisdictions operational requirements. These improvements can include conversion of stop control, signalization, changes to signal phasing, and/or addition of lanes as appropriate. The following improvements have been recommended:

7.1 Project Completion With Project Intersection Circulation Improvements

Under project completion with project conditions, the following modifications to intersection configurations are recommended as circulation improvements as follows:

- Sycamore Canyon Road/Fair Isle Drive: Add an overlap phase to the existing northbound right-turn lane.

Figure 15 illustrates the project completion with project with recommended improvements and Table F shows the resulting levels of service.

8.0 VEHICLE MILES TRAVELED (VMT) SCREENING ANALYSIS

Based on the City of Moreno Valley *Transportation Impact Analysis Preparation Guide for Vehicles Miles Traveled and Level of Service Assessment*, (June 2020), a project located in a low VMT area can be effectively screened out from a project-level VMT assessment. To identify if the project is in a low VMT-generating area, the WRCOG screening tool was applied using VMT per capita. Figure 16 shows the low VMT area screening for the project. As shown in Figure 16, the project TAZ based VMT per capita is 15.45 miles. The jurisdictional VMT per capita is 19.04 miles. Since the project TAZ VMT per capita is lower than the City's VMT per capita, the project is considered to be in a low VMT generating TAZ and presumed to have a less than significant impact on VMT.

9.0 IMPACT CRITERIA FOR CEQA DETERMINATION

This section evaluates the CEQA checklist for impact evaluation.

A. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The project is consistent with the City's adopted plans and policies. With implementation of the recommended improvements, the project has less than significant impacts based on the City's impact criteria. The project would not conflict with adopted policies supporting alternative transportation modes. The project will not change roadway designations from those in the City's General Plan. The project will also not result in removal of any of the facilities listed above. Therefore, the project impact is considered less than significant.

B. Conflict or be inconsistent with CEQA Guidelines 15064.3, subdivision (b)?

Based on the City's Low VMT Screening Tool, the project will not require a full VMT analysis and will therefore have a less than significant impact under CEQA.

C. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The design of driveways and other project access locations will be based on City Code, which sets the standard for such design. It is not anticipated that traffic hazards will increase, therefore, the project impact is considered less than significant.

D. Result in inadequate emergency access?

The proposed driveways will be designed in accordance with all applicable design and safety standards required by adopted fire codes, safety codes, and building codes established by the City's Engineering and Fire Departments. The project will not increase delays on street segments substantially, therefore, the project will not result in inadequate emergency access, and the project impact is considered less than significant.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

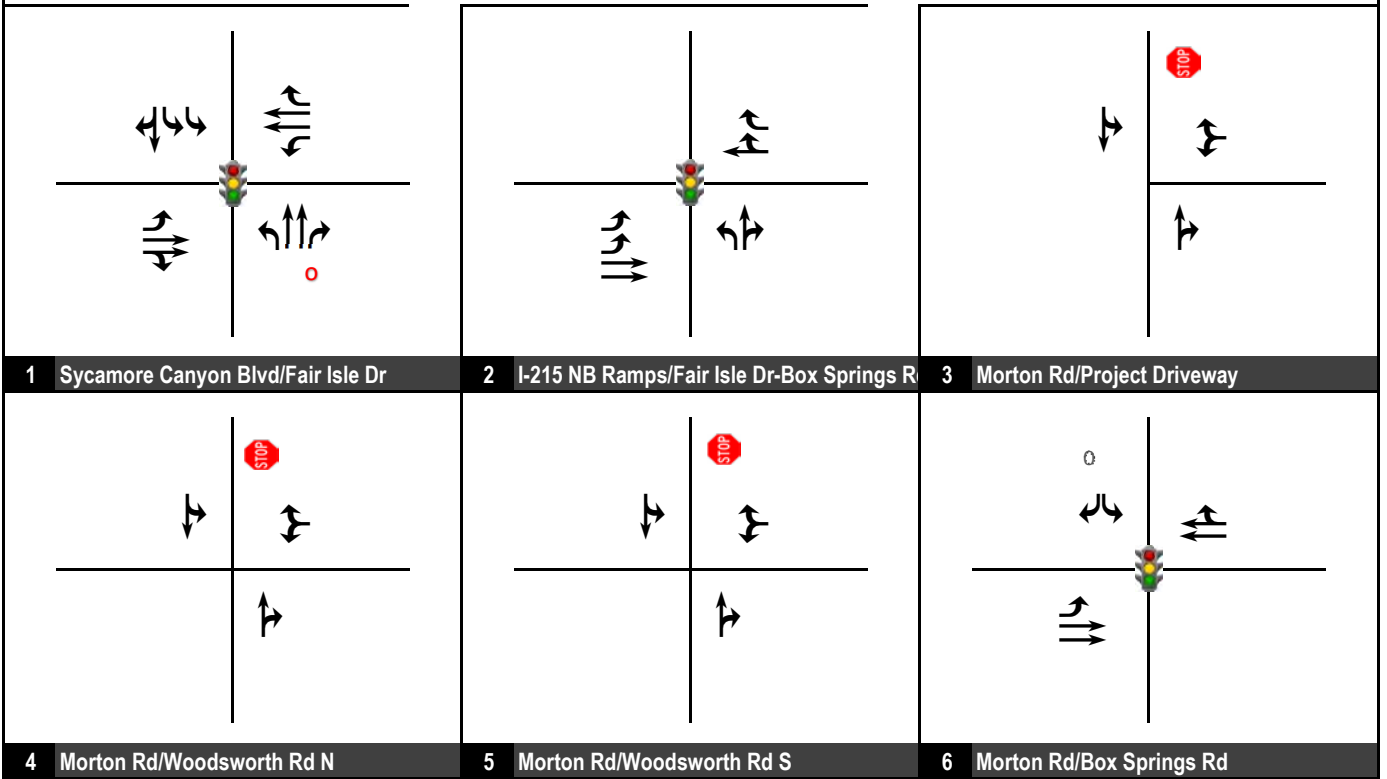


FIGURE 15

Legend

- Signal
- Improvements
- Stop Sign

**Gateway Highlands Residential
Project Completion With Project With Improvements Intersection Lane Geometrics and Stop Control**



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table F: Project Completion With Project With Improvements Intersection Levels of Service

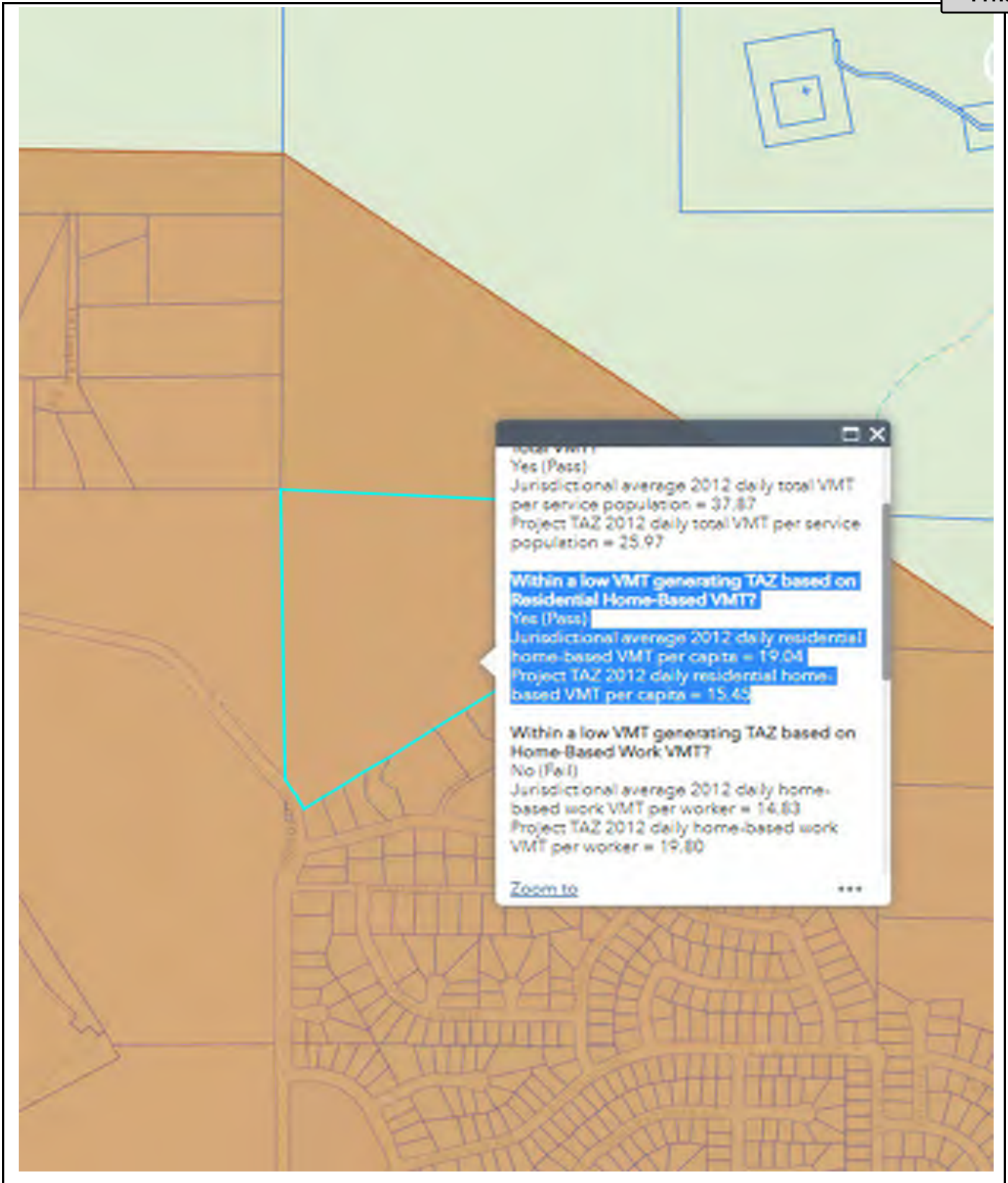
Intersection	LOS Std.	Jurisdiction	Control	With Project				WP With Improvements			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 . Sycamore Canyon Blvd/Fair Isle Dr	D	Riverside	Signal	72	E *	60.5	E *	52.2	D	29.6	C

Notes:

* Exceeds LOS Standard

TWSC = Two-Way Stop Control; For TWSC intersections, reported delay is for worst-case movement.

LOS = Level of Service



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Source: WRCOG Screening Tool

FIGURE 16

Gateway Highlands VMT Screening Map



10.0 SUMMARY & CONCLUSIONS

The proposed project is forecast to generate 80 trips in the a.m. peak hour, 107 trips in the p.m. peak hour, and 1,020 daily trips. Based on the intersection LOS analysis, with the circulation improvements, the study intersections will operate at satisfactory LOS under existing and project completion. The project will not require a full VMT analysis based on the Low VMT screening tool and has a less than significant impact on VMT.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

APPENDIX A: SCOPING AGREEMENT

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

EXHIBIT A

Project Scoping Form

This scoping form shall be submitted to the Lead Agency to assist in identifying infrastructure improvements that may be required to support traffic from the proposed project.

Project Identification:

Approved 1/12/21


Case Number:	
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Gateway Highlands
Project Address:	East side of Morton Road north of Jennings Court
Project Opening Year:	2022
Project Description:	The project will include construction of 108 detached condos. Access will be Morton Road

	Consultant:	Developer:
Name:	Translutions, Inc.	Ackerman Law PC
Address:	17632 Irvine Blvd., #200 Tustin, CA 92780	3200 E. Guasti Road, Ste. 100 Ontario, CA 91761
Telephone:	949-856-3131	(909) 456-1460
Email:	sandipan@translutions.com	jason.m.ackerman@gmail.com

Trip Generation Information:

Trip Generation Data Source: ITE Trip Generation, 10th Edition (Land Use 210 "Single-Family Detached Housing")

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Current General Plan Land Use:

Residential

Proposed General Plan Land Use:

Residential

Current Zoning:

Residential

Proposed Zoning:

Residential

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips				20	60	80
PM Trips				67	40	107

Trip Generation based on rates for Land Use 210 "Single-Family Detached Housing" from ITE *Trip Generation 10th Edition*.

Trip Internalization: Yes No (____% Trip Discount)

Pass-By Allowance: Yes No (____% Trip Discount)

Potential Screening Checks

Is your project screened from specific analyses (see Page 3 of the guidelines related to LOS assessment and Pages 22-23 for VMT screening criteria).

Is the project screened from LOS assessment? Yes No

LOS screening justification (see Page 3 of the guidelines): _____
 Trip generation is greater than the threshold.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Is the project screened from VMT assessment? Yes No

VMT screening justification (see Pages 22-23 of the guidelines): _____
 The project is located in a low VMT area based on residential VMT. Please see attached screening map. Jurisdictional average 2012 daily residential home-based VMT per capita is 19.04 miles and that for Project TAZ is 15.45 miles.

Level of Service Scoping

- Proposed Trip Distribution (Attach Graphic for Detailed Distribution):

North	South	East	West
0 %	100 %	%	%

Link level of service and data collection:

_____ will be required
 _____ will not be required

- Attach list of study intersections (and roadway segments if applicable)
- Attach site plan
- Other specific items to be addressed:
 - ✓ Site access
 - On-site circulation
 - Parking
 - Consistency with Plans supporting Bikes/Peds/Transit
 - Other _____
- Date of Traffic Counts New counts will be conducted and adjusted for COVID.
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased)

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

VMT Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used N/A
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

STUDY INTERSECTIONS:

1. Sycamore Canyon Boulevard/Fair Isle Drive
2. I-215 Northbound Ramps/Fair Isle Drive-Box Springs Road
3. Morton Road/Project Driveway
4. Morton Road/Woodsworth Road. N
5. Morton Road/Woodsworth Road. S
6. Morton Road/Box Springs Road.

SITE PLAN: Attached Figure 1

TRIP GENERATION: Attached Table A

TRIP DISTRIBUTION: Attached Figure 2

TRIP ASSIGNMENT: Attached Figure 3

VMT SCREENING MAP: Attached Figure 4

ANALYSIS SCENARIOS:

- Existing Conditions
- Project Completion without Project (existing plus ambient growth plus cumulative projects). Analysis year will be 2022, growth rate of 2% per annum.
- Project Completion with Project (Project Completion Without Project plus project)



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

FIGURE 1

Gateway Highlands
Site Plan



Table A - Project Trip Generation

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Future Use								
Single-Family Residential								
Trip Generation Rates ¹		0.19	0.56	0.74	0.62	0.37	0.99	9.44
Trip Generation	108 DU	20	60	80	67	40	107	1,020
Total Trip Generation		20	60	80	67	40	107	1,020

Notes: DU = Dwelling Unit

¹ Trip generation based on rates for Land Use 210 - "Single-Family Detached Housing" from Institute of Transportation Engineers' (ITE) *Trip Generation* (10th Edition).

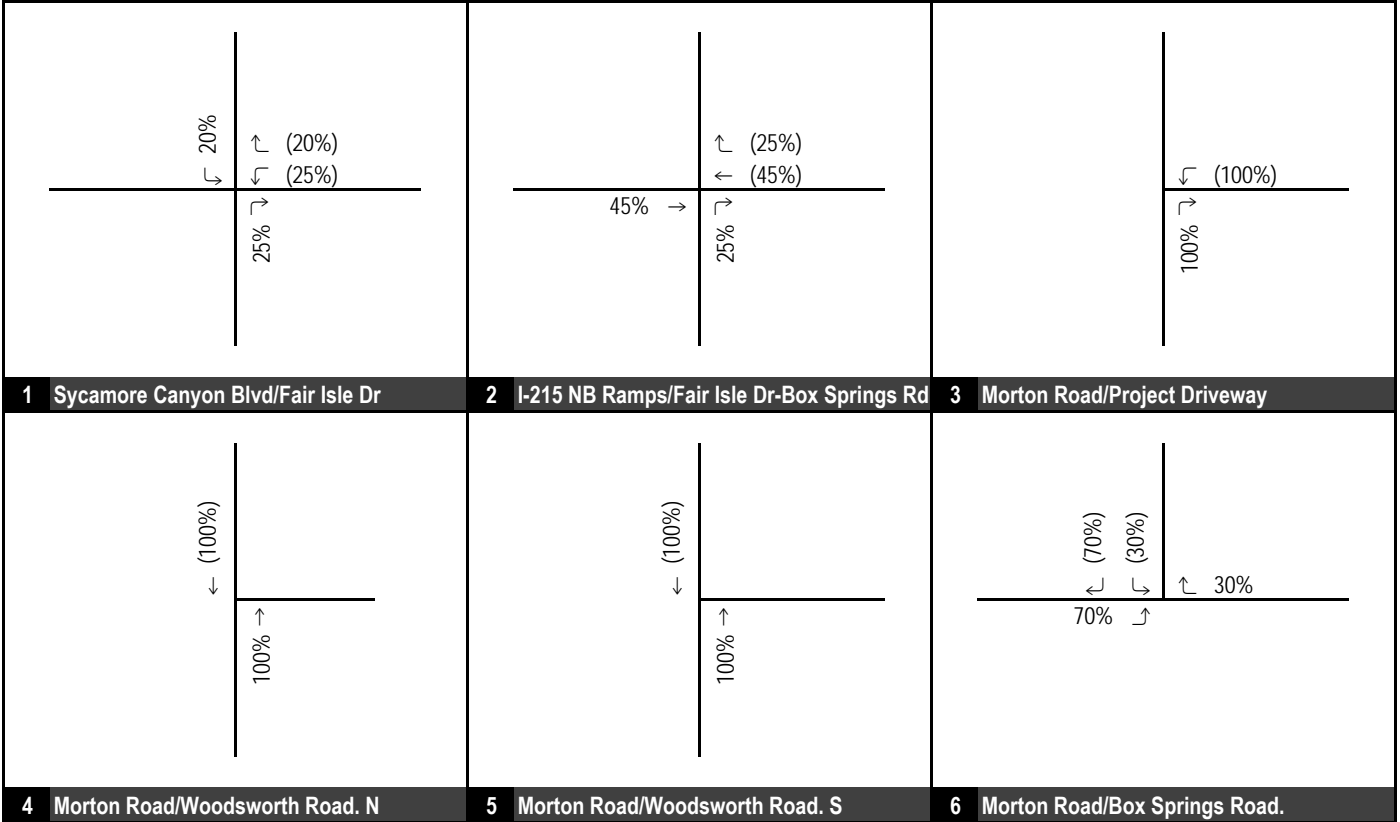


FIGURE 2

XXX%(YYY%) Inbound%(Outbound%) Percent



**Gateway Highlands
Project Trip Distribution**

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

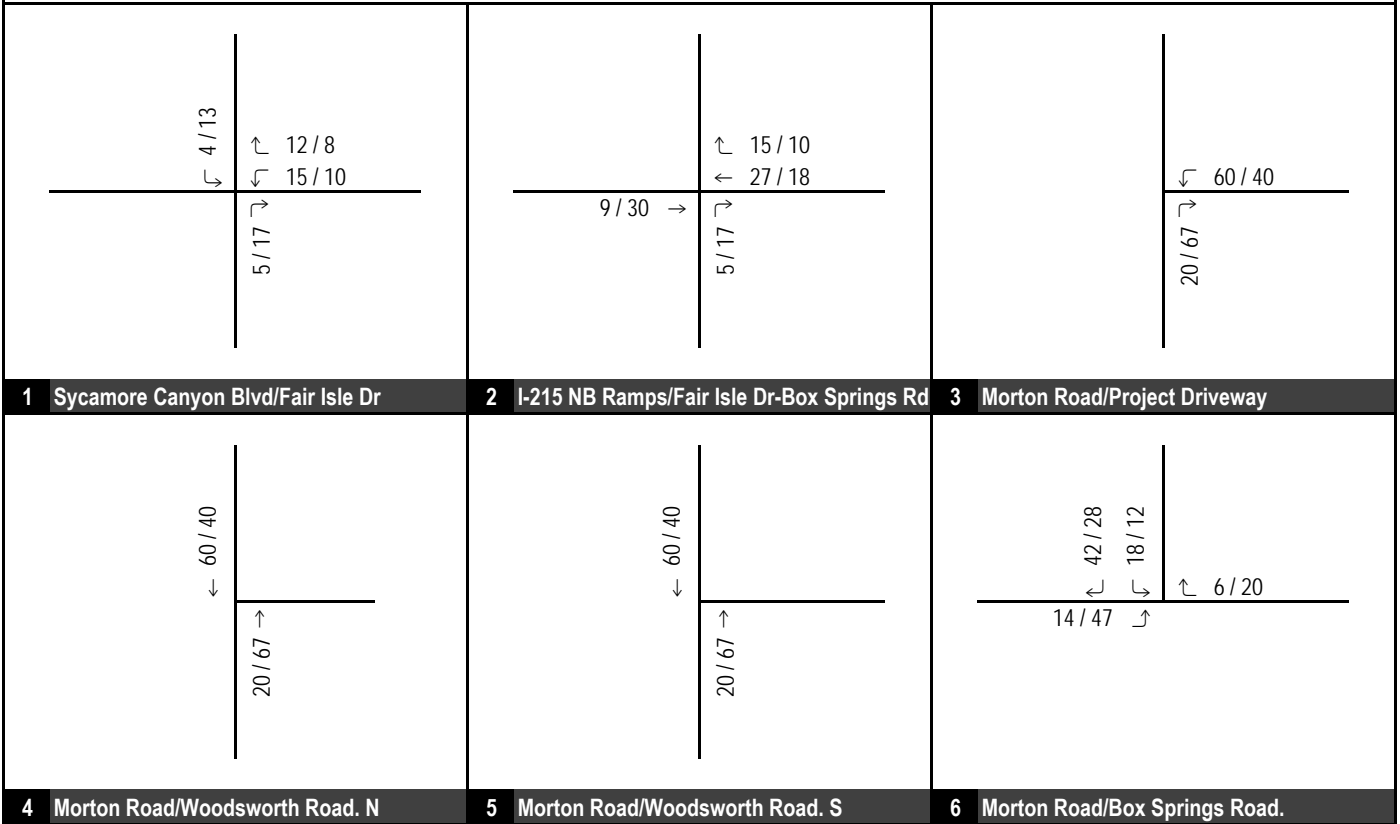


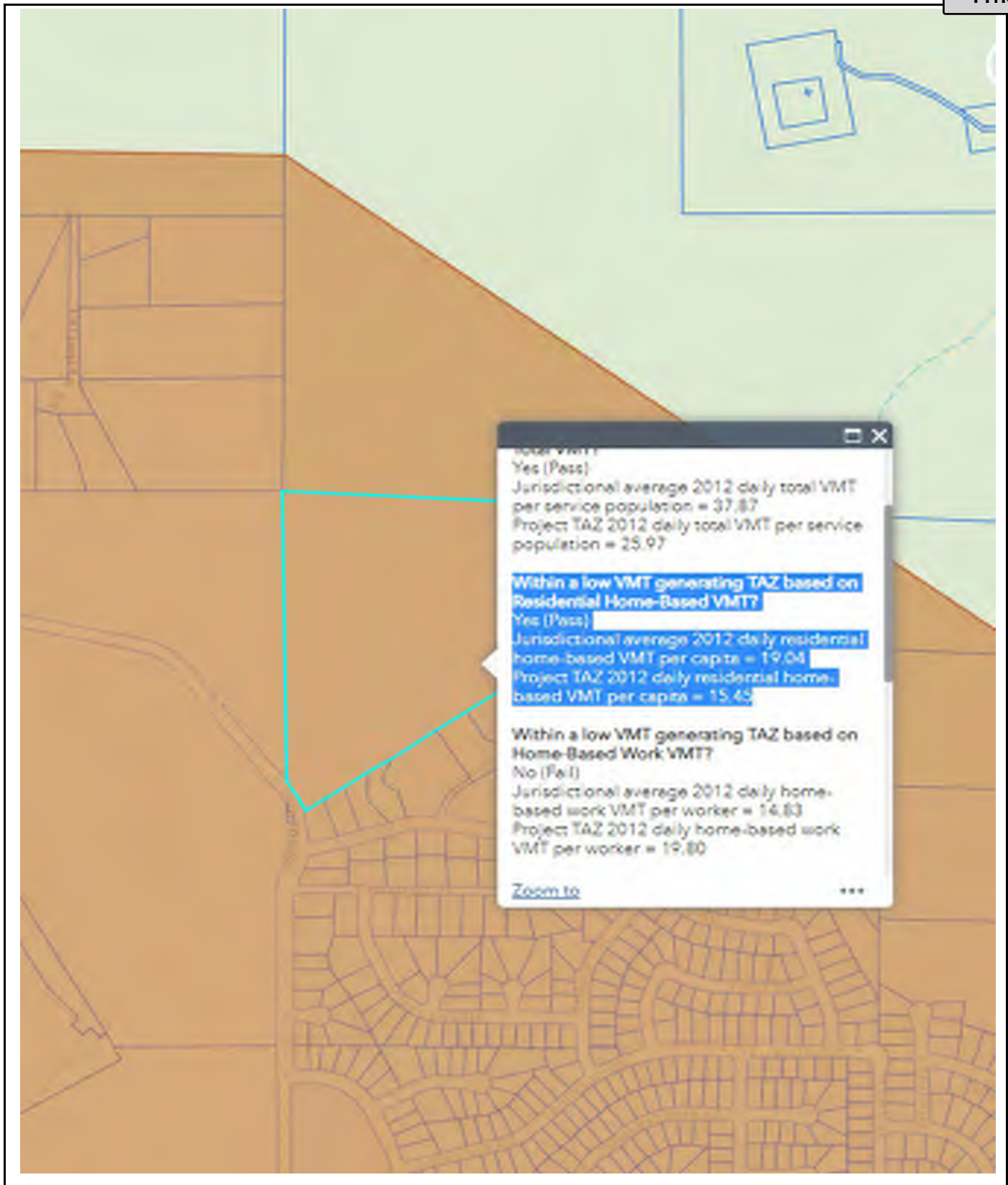
FIGURE 3

XXX / YYY AM / PM Peak Hour Trips



**Gateway Highlands
Project Trip Assignment**

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Source: WRCOG Screening Tool

FIGURE 5

Gateway Highlands VMT Screening Map



APPENDIX B: TRAFFIC COUNTS

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	10	15	1	26	16	8	34	58	12	142	52	206	4	11	10	25	315
07:15 AM	13	14	1	28	24	4	39	67	20	131	52	203	11	12	22	45	343
07:30 AM	16	23	1	40	23	8	45	76	17	155	61	233	6	16	13	35	384
07:45 AM	12	35	0	47	23	13	64	100	28	122	70	220	7	17	18	42	409
Total	51	87	3	141	86	33	182	301	77	550	235	862	28	56	63	147	1451
08:00 AM	18	23	1	42	15	9	42	66	11	96	65	172	2	21	13	36	316
08:15 AM	12	28	3	43	21	8	24	53	19	86	62	167	5	19	15	39	302
08:30 AM	17	22	2	41	32	5	27	64	26	67	69	162	2	13	13	28	295
08:45 AM	11	26	2	39	26	8	21	55	21	46	60	127	2	15	18	35	256
Total	58	99	8	165	94	30	114	238	77	295	256	628	11	68	59	138	1169
Grand Total	109	186	11	306	180	63	296	539	154	845	491	1490	39	124	122	285	2620
Apprch %	35.6	60.8	3.6		33.4	11.7	54.9		10.3	56.7	33		13.7	43.5	42.8		
Total %	4.2	7.1	0.4	11.7	6.9	2.4	11.3	20.6	5.9	32.3	18.7	56.9	1.5	4.7	4.7	10.9	
Passenger Vehicles	108	179	11	298	172	63	295	530	150	827	375	1352	34	119	121	274	2454
% Passenger Vehicles	99.1	96.2	100	97.4	95.6	100	99.7	98.3	97.4	97.9	76.4	90.7	87.2	96	99.2	96.1	93.7
Large 2 Axle Vehicles	1	7	0	8	8	0	1	9	4	12	35	51	5	4	1	10	78
% Large 2 Axle Vehicles	0.9	3.8	0	2.6	4.4	0	0.3	1.7	2.6	1.4	7.1	3.4	12.8	3.2	0.8	3.5	3
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	5	7	12	0	1	0	1	13
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0.6	1.4	0.8	0	0.8	0	0.4	0.5
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	1	74	75	0	0	0	0	75
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0.1	15.1	5	0	0	0	0	2.9

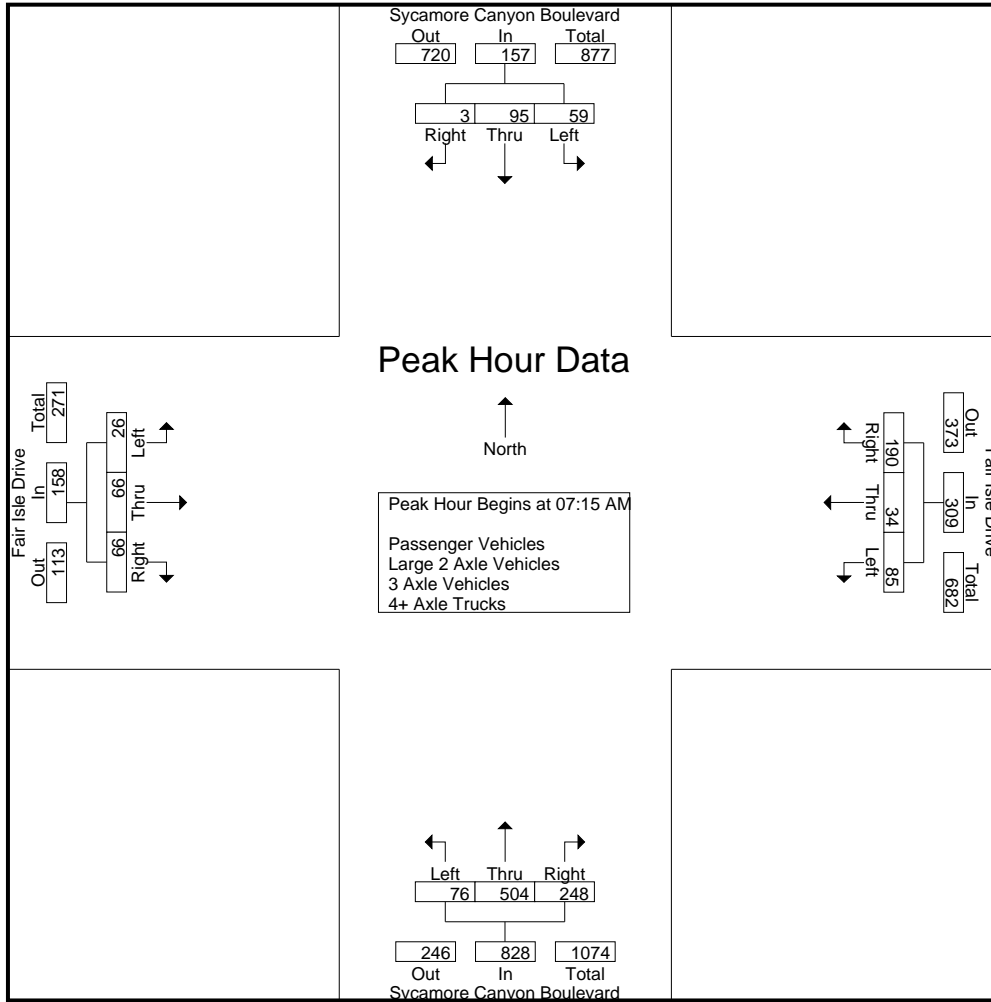
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	13	14	1	28	24	4	39	67	20	131	52	203	11	12	22	45	343
07:30 AM	16	23	1	40	23	8	45	76	17	155	61	233	6	16	13	35	384
07:45 AM	12	35	0	47	23	13	64	100	28	122	70	220	7	17	18	42	409
08:00 AM	18	23	1	42	15	9	42	66	11	96	65	172	2	21	13	36	316
Total Volume	59	95	3	157	85	34	190	309	76	504	248	828	26	66	66	158	1452
% App. Total	37.6	60.5	1.9		27.5	11	61.5		9.2	60.9	30		16.5	41.8	41.8		
PHF	.819	.679	.750	.835	.885	.654	.742	.773	.679	.813	.886	.888	.591	.786	.750	.878	.888

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM				07:15 AM				07:00 AM				07:15 AM			
+0 mins.	12	35	0	47	24	4	39	67	12	142	52	206	11	12	22	45
+15 mins.	18	23	1	42	23	8	45	76	20	131	52	203	6	16	13	35
+30 mins.	12	28	3	43	23	13	64	100	17	155	61	233	7	17	18	42
+45 mins.	17	22	2	41	15	9	42	66	28	122	70	220	2	21	13	36
Total Volume	59	108	6	173	85	34	190	309	77	550	235	862	26	66	66	158
% App. Total	34.1	62.4	3.5		27.5	11	61.5		8.9	63.8	27.3		16.5	41.8	41.8	
PHF	.819	.771	.500	.920	.885	.654	.742	.773	.688	.887	.839	.925	.591	.786	.750	.878

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City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	10	15	1	26	16	8	34	58	12	141	43	196	4	11	10	25	305
07:15 AM	13	13	1	27	21	4	39	64	20	130	44	194	9	12	22	43	328
07:30 AM	16	22	1	39	22	8	45	75	17	152	48	217	6	16	13	35	366
07:45 AM	12	34	0	46	23	13	63	99	27	117	52	196	7	14	18	39	380
Total	51	84	3	138	82	33	181	296	76	540	187	803	26	53	63	142	1379
08:00 AM	18	23	1	42	14	9	42	65	11	96	53	160	1	21	13	35	302
08:15 AM	11	25	3	39	21	8	24	53	18	81	43	142	5	18	14	37	271
08:30 AM	17	22	2	41	30	5	27	62	25	65	52	142	1	13	13	27	272
08:45 AM	11	25	2	38	25	8	21	54	20	45	40	105	1	14	18	33	230
Total	57	95	8	160	90	30	114	234	74	287	188	549	8	66	58	132	1075
Grand Total	108	179	11	298	172	63	295	530	150	827	375	1352	34	119	121	274	2454
Apprch %	36.2	60.1	3.7		32.5	11.9	55.7		11.1	61.2	27.7		12.4	43.4	44.2		
Total %	4.4	7.3	0.4	12.1	7	2.6	12	21.6	6.1	33.7	15.3	55.1	1.4	4.8	4.9	11.2	

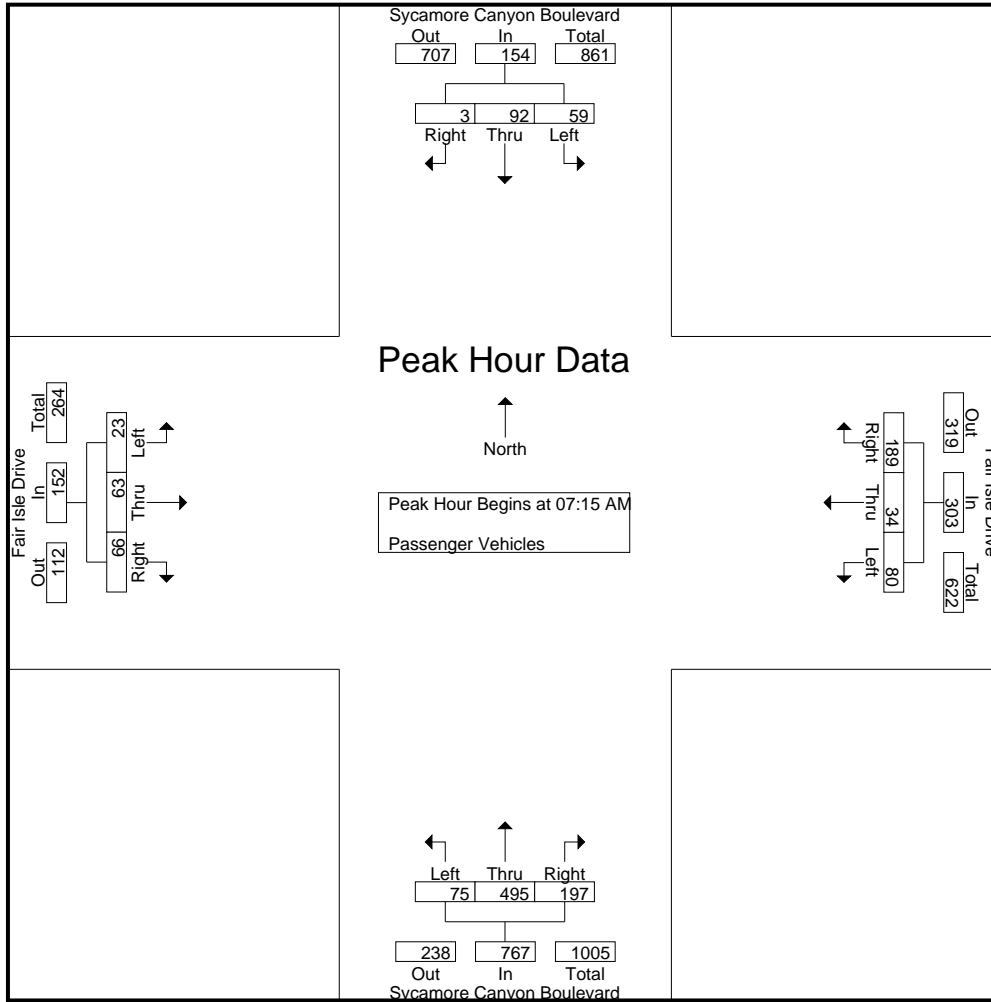
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	13	13	1	27	21	4	39	64	20	130	44	194	9	12	22	43	328
07:30 AM	16	22	1	39	22	8	45	75	17	152	48	217	6	16	13	35	366
07:45 AM	12	34	0	46	23	13	63	99	27	117	52	196	7	14	18	39	380
08:00 AM	18	23	1	42	14	9	42	65	11	96	53	160	1	21	13	35	302
Total Volume	59	92	3	154	80	34	189	303	75	495	197	767	23	63	66	152	1376
% App. Total	38.3	59.7	1.9		26.4	11.2	62.4		9.8	64.5	25.7		15.1	41.4	43.4		
PHF	.819	.676	.750	.837	.870	.654	.750	.765	.694	.814	.929	.884	.639	.750	.750	.884	.905

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

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City of Riverside
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Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	13	13	1	27	21	4	39	64	20	130	44	194	9	12	22	43
+15 mins.	16	22	1	39	22	8	45	75	17	152	48	217	6	16	13	35
+30 mins.	12	34	0	46	23	13	63	99	27	117	52	196	7	14	18	39
+45 mins.	18	23	1	42	14	9	42	65	11	96	53	160	1	21	13	35
Total Volume	59	92	3	154	80	34	189	303	75	495	197	767	23	63	66	152
% App. Total	38.3	59.7	1.9		26.4	11.2	62.4		9.8	64.5	25.7		15.1	41.4	43.4	
PHF	.819	.676	.750	.837	.870	.654	.750	.765	.694	.814	.929	.884	.639	.750	.750	.884

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

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City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0
07:15 AM	0	1	0	1	3	0	0	3	0	1	2	3	2	0	0	2	9
07:30 AM	0	1	0	1	1	0	0	1	0	2	10	12	0	0	0	0	14
07:45 AM	0	1	0	1	0	0	1	1	1	3	6	10	0	3	0	3	15
Total	0	3	0	3	4	0	1	5	1	7	20	28	2	3	0	5	41
08:00 AM	0	0	0	0	1	0	0	1	0	0	5	5	1	0	0	1	7
08:15 AM	1	3	0	4	0	0	0	0	1	4	3	8	0	1	1	2	14
08:30 AM	0	0	0	0	2	0	0	2	1	1	2	4	1	0	0	1	7
08:45 AM	0	1	0	1	1	0	0	1	1	0	5	6	1	0	0	1	9
Total	1	4	0	5	4	0	0	4	3	5	15	23	3	1	1	5	37
Grand Total	1	7	0	8	8	0	1	9	4	12	35	51	5	4	1	10	78
Apprch %	12.5	87.5	0		88.9	0	11.1		7.8	23.5	68.6		50	40	10		
Total %	1.3	9	0	10.3	10.3	0	1.3	11.5	5.1	15.4	44.9	65.4	6.4	5.1	1.3	12.8	

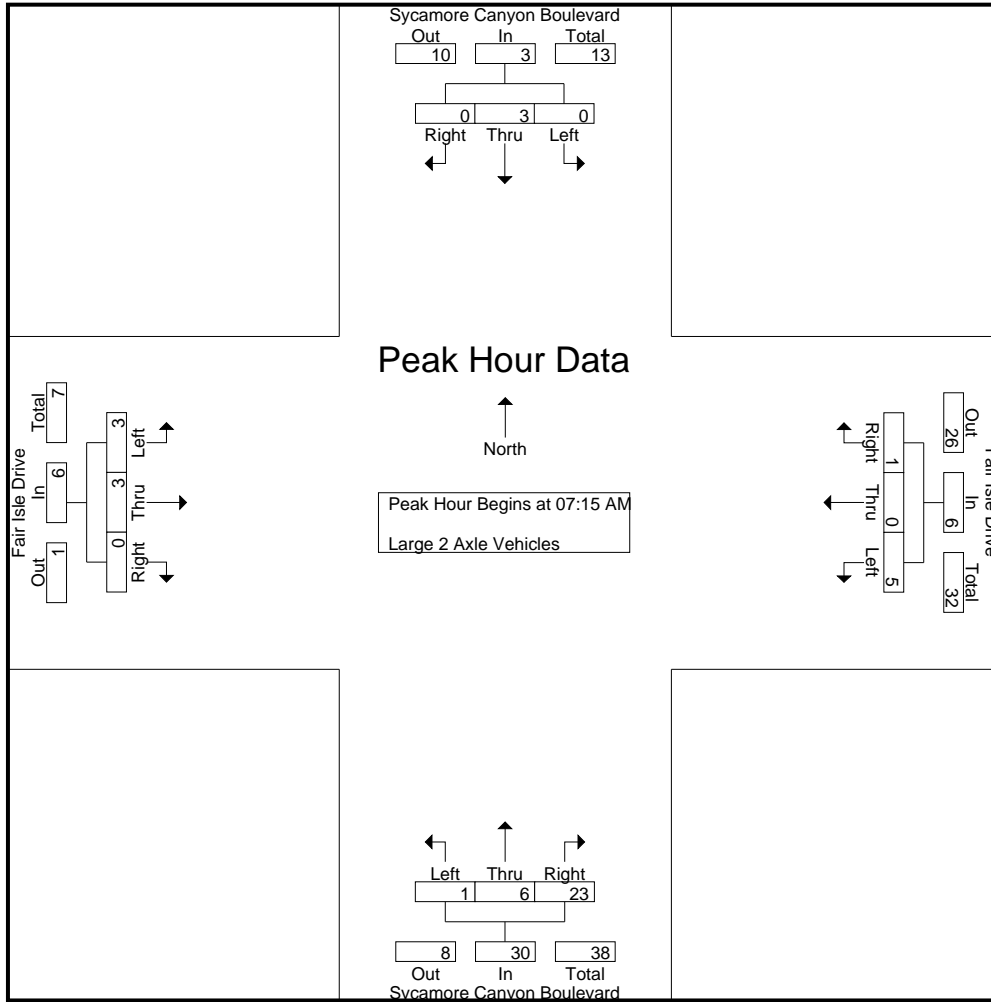
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	1	0	1	3	0	0	3	0	1	2	3	2	0	0	2	9
07:30 AM	0	1	0	1	1	0	0	1	0	2	10	12	0	0	0	0	14
07:45 AM	0	1	0	1	0	0	1	1	1	3	6	10	0	3	0	3	15
08:00 AM	0	0	0	0	1	0	0	1	0	0	5	5	1	0	0	1	7
Total Volume	0	3	0	3	5	0	1	6	1	6	23	30	3	3	0	6	45
% App. Total	0	100	0		83.3	0	16.7		3.3	20	76.7		50	50	0		
PHF	.000	.750	.000	.750	.417	.000	.250	.500	.250	.500	.575	.625	.375	.250	.000	.500	.750

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Counts Unlimited, Inc.
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City of Riverside
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 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	1	0	1	3	0	0	3	0	1	2	3	2	0	0	2
+15 mins.	0	1	0	1	1	0	0	1	0	2	10	12	0	0	0	0
+30 mins.	0	1	0	1	0	0	1	1	1	3	6	10	0	3	0	3
+45 mins.	0	0	0	0	1	0	0	1	0	0	5	5	1	0	0	1
Total Volume	0	3	0	3	5	0	1	6	1	6	23	30	3	3	0	6
% App. Total	0	100	0		83.3	0	16.7		3.3	20	76.7		50	50	0	
PHF	.000	.750	.000	.750	.417	.000	.250	.500	.250	.500	.575	.625	.375	.250	.000	.500

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	3
Total	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2
08:45 AM	0	0	0	0	0	0	0	0	0	1	3	4	0	1	0	1	5
Total	0	0	0	0	0	0	0	0	0	2	5	7	0	1	0	1	8
Grand Total	0	0	0	0	0	0	0	0	0	5	7	12	0	1	0	1	13
Apprch %	0	0	0		0	0	0		0	41.7	58.3		0	100	0		
Total %	0	0	0		0	0	0		0	38.5	53.8	92.3	0	7.7	0	7.7	

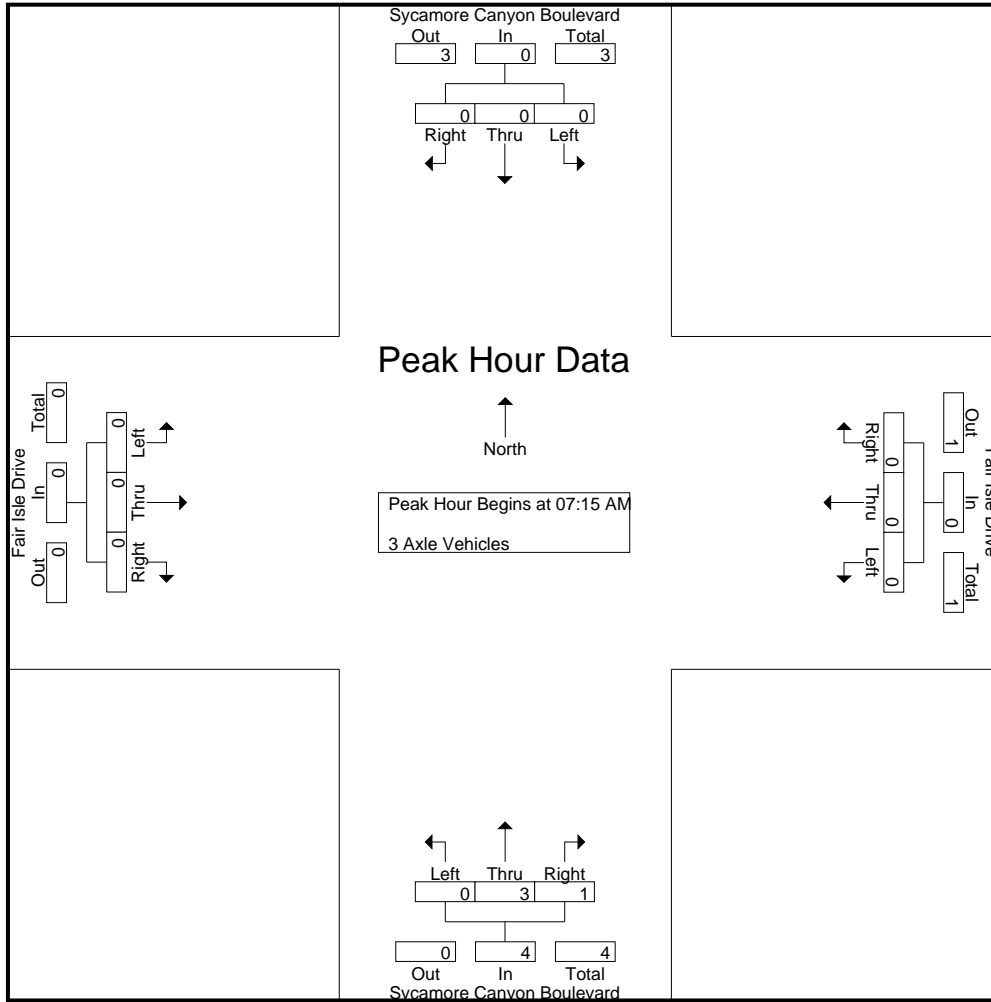
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	3	1	4	0	0	0	0	4
% App. Total	0	0	0		0	0	0		0	75	25		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.250	.333	.000	.000	.000	.000	.333

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	3	1	4	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	75	25	333	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.250	.333	.000	.000	.000	.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	6
07:15 AM	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	6
07:30 AM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	0	0	0	0	11	11	0	0	0	0	11
Total	0	0	0	0	0	0	0	0	0	0	26	26	0	0	0	0	26
08:00 AM	0	0	0	0	0	0	0	0	0	0	7	7	0	0	0	0	7
08:15 AM	0	0	0	0	0	0	0	0	0	0	16	16	0	0	0	0	16
08:30 AM	0	0	0	0	0	0	0	0	0	1	13	14	0	0	0	0	14
08:45 AM	0	0	0	0	0	0	0	0	0	0	12	12	0	0	0	0	12
Total	0	0	0	0	0	0	0	0	0	1	48	49	0	0	0	0	49
Grand Total	0	0	0	0	0	0	0	0	0	1	74	75	0	0	0	0	75
Apprch %	0	0	0		0	0	0		0	1.3	98.7		0	0	0		
Total %	0	0	0		0	0	0		0	1.3	98.7	100	0	0	0		

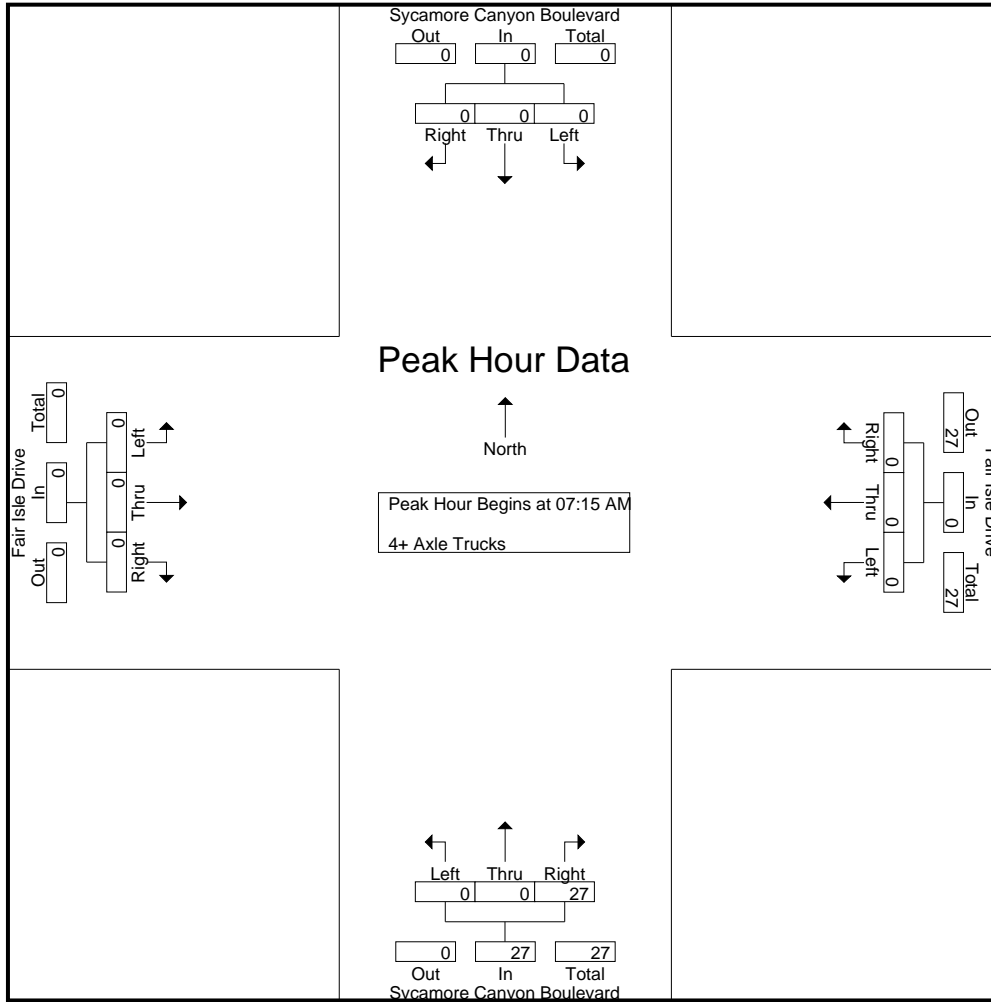
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	6
07:30 AM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	0	0	0	0	11	11	0	0	0	0	11
08:00 AM	0	0	0	0	0	0	0	0	0	0	7	7	0	0	0	0	7
Total Volume	0	0	0	0	0	0	0	0	0	0	27	27	0	0	0	0	27
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.614	.614	.000	.000	.000	.000	.614

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	11	11	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	7	7	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	27	27	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	100	100	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.614	.614	.000	.000	.000	.000

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	49	75	2	126	21	14	31	66	22	119	125	266	4	16	21	41	499
04:15 PM	74	81	4	159	22	18	29	69	53	82	122	257	3	17	19	39	524
04:30 PM	77	68	5	150	20	25	37	82	37	93	143	273	4	19	20	43	548
04:45 PM	73	88	7	168	24	21	18	63	36	71	113	220	1	16	25	42	493
Total	273	312	18	603	87	78	115	280	148	365	503	1016	12	68	85	165	2064
05:00 PM	101	99	10	210	24	18	26	68	31	74	121	226	2	25	19	46	550
05:15 PM	96	100	10	206	25	22	31	78	27	76	116	219	4	34	28	66	569
05:30 PM	91	110	6	207	26	25	23	74	28	87	127	242	3	23	23	49	572
05:45 PM	92	86	5	183	26	25	27	78	25	48	119	192	2	15	28	45	498
Total	380	395	31	806	101	90	107	298	111	285	483	879	11	97	98	206	2189
Grand Total	653	707	49	1409	188	168	222	578	259	650	986	1895	23	165	183	371	4253
Apprch %	46.3	50.2	3.5		32.5	29.1	38.4		13.7	34.3	52		6.2	44.5	49.3		
Total %	15.4	16.6	1.2	33.1	4.4	4	5.2	13.6	6.1	15.3	23.2	44.6	0.5	3.9	4.3	8.7	
Passenger Vehicles	652	693	49	1394	178	168	222	568	258	636	895	1789	15	158	181	354	4105
% Passenger Vehicles	99.8	98	100	98.9	94.7	100	100	98.3	99.6	97.8	90.8	94.4	65.2	95.8	98.9	95.4	96.5
Large 2 Axle Vehicles	1	13	0	14	10	0	0	10	1	10	23	34	8	7	2	17	75
% Large 2 Axle Vehicles	0.2	1.8	0	1	5.3	0	0	1.7	0.4	1.5	2.3	1.8	34.8	4.2	1.1	4.6	1.8
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	4	12	16	0	0	0	0	17
% 3 Axle Vehicles	0	0.1	0	0.1	0	0	0	0	0	0.6	1.2	0.8	0	0	0	0	0.4
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	56	56	0	0	0	0	56
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	5.7	3	0	0	0	0	1.3

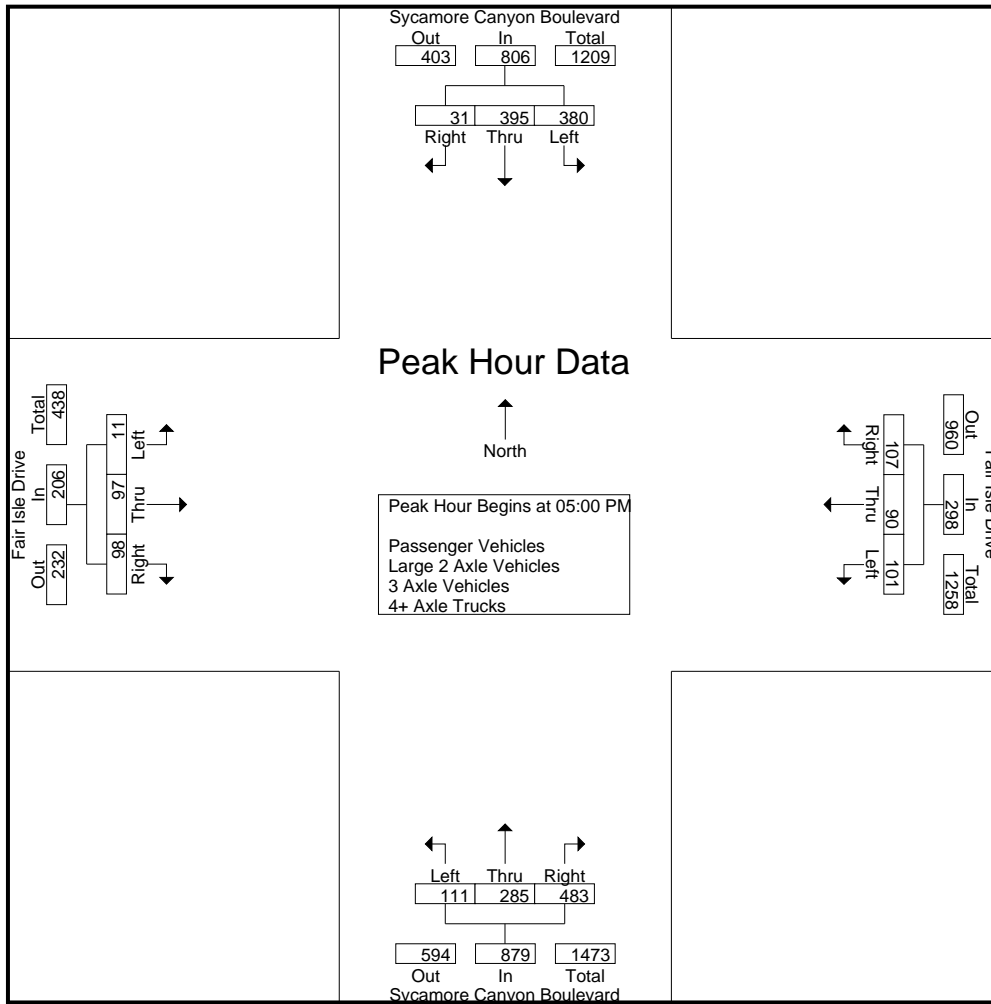
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	101	99	10	210	24	18	26	68	31	74	121	226	2	25	19	46	550
05:15 PM	96	100	10	206	25	22	31	78	27	76	116	219	4	34	28	66	569
05:30 PM	91	110	6	207	26	25	23	74	28	87	127	242	3	23	23	49	572
05:45 PM	92	86	5	183	26	25	27	78	25	48	119	192	2	15	28	45	498
Total Volume	380	395	31	806	101	90	107	298	111	285	483	879	11	97	98	206	2189
% App. Total	47.1	49	3.8		33.9	30.2	35.9		12.6	32.4	54.9		5.3	47.1	47.6		
PHF	.941	.898	.775	.960	.971	.900	.863	.955	.895	.819	.951	.908	.688	.713	.875	.780	.957

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:00 PM				05:00 PM			
+0 mins.	101	99	10	210	24	18	26	68	22	119	125	266	2	25	19	46
+15 mins.	96	100	10	206	25	22	31	78	53	82	122	257	4	34	28	66
+30 mins.	91	110	6	207	26	25	23	74	37	93	143	273	3	23	23	49
+45 mins.	92	86	5	183	26	25	27	78	36	71	113	220	2	15	28	45
Total Volume	380	395	31	806	101	90	107	298	148	365	503	1016	11	97	98	206
% App. Total	47.1	49	3.8		33.9	30.2	35.9		14.6	35.9	49.5		5.3	47.1	47.6	
PHF	.941	.898	.775	.960	.971	.900	.863	.955	.698	.767	.879	.930	.688	.713	.875	.780

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	49	74	2	125	20	14	31	65	22	119	113	254	3	16	20	39	483
04:15 PM	74	80	4	158	20	18	29	67	53	78	104	235	2	16	19	37	497
04:30 PM	77	67	5	149	18	25	37	80	36	93	132	261	3	18	20	41	531
04:45 PM	73	86	7	166	23	21	18	62	36	68	102	206	0	15	24	39	473
Total	273	307	18	598	81	78	115	274	147	358	451	956	8	65	83	156	1984
05:00 PM	101	96	10	207	23	18	26	67	31	72	108	211	1	23	19	43	528
05:15 PM	96	99	10	205	24	22	31	77	27	76	105	208	3	34	28	65	555
05:30 PM	90	108	6	204	25	25	23	73	28	83	121	232	2	22	23	47	556
05:45 PM	92	83	5	180	25	25	27	77	25	47	110	182	1	14	28	43	482
Total	379	386	31	796	97	90	107	294	111	278	444	833	7	93	98	198	2121
Grand Total	652	693	49	1394	178	168	222	568	258	636	895	1789	15	158	181	354	4105
Apprch %	46.8	49.7	3.5		31.3	29.6	39.1		14.4	35.6	50		4.2	44.6	51.1		
Total %	15.9	16.9	1.2	34	4.3	4.1	5.4	13.8	6.3	15.5	21.8	43.6	0.4	3.8	4.4	8.6	

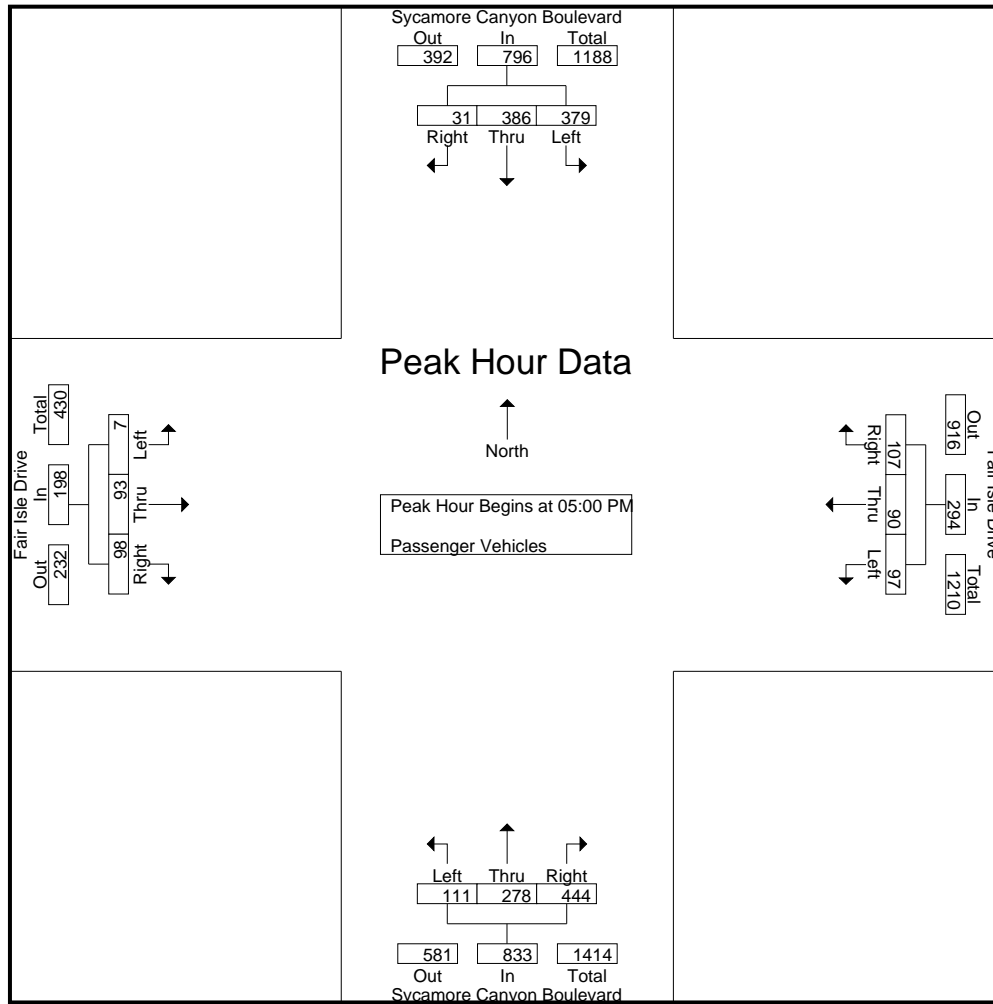
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	101	96	10	207	23	18	26	67	31	72	108	211	1	23	19	43	528
05:15 PM	96	99	10	205	24	22	31	77	27	76	105	208	3	34	28	65	555
05:30 PM	90	108	6	204	25	25	23	73	28	83	121	232	2	22	23	47	556
05:45 PM	92	83	5	180	25	25	27	77	25	47	110	182	1	14	28	43	482
Total Volume	379	386	31	796	97	90	107	294	111	278	444	833	7	93	98	198	2121
% App. Total	47.6	48.5	3.9		33	30.6	36.4		13.3	33.4	53.3		3.5	47	49.5		
PHF	.938	.894	.775	.961	.970	.900	.863	.955	.895	.837	.917	.898	.583	.684	.875	.762	.954

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	101	96	10	207	23	18	26	67	31	72	108	211	1	23	19	43
+15 mins.	96	99	10	205	24	22	31	77	27	76	105	208	3	34	28	65
+30 mins.	90	108	6	204	25	25	23	73	28	83	121	232	2	22	23	47
+45 mins.	92	83	5	180	25	25	27	77	25	47	110	182	1	14	28	43
Total Volume	379	386	31	796	97	90	107	294	111	278	444	833	7	93	98	198
% App. Total	47.6	48.5	3.9		33	30.6	36.4		13.3	33.4	53.3		3.5	47	49.5	
PHF	.938	.894	.775	.961	.970	.900	.863	.955	.895	.837	.917	.898	.583	.684	.875	.762

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	1	0	1	1	0	0	1	0	0	4	4	1	0	1	2	2
04:15 PM	0	1	0	1	2	0	0	2	0	2	4	6	1	1	0	2	11
04:30 PM	0	1	0	1	2	0	0	2	1	0	5	6	1	1	0	2	11
04:45 PM	0	2	0	2	1	0	0	1	0	2	3	5	1	1	1	3	11
Total	0	5	0	5	6	0	0	6	1	4	16	21	4	3	2	9	41
05:00 PM	0	2	0	2	1	0	0	1	0	1	3	4	1	2	0	3	10
05:15 PM	0	1	0	1	1	0	0	1	0	0	3	3	1	0	0	1	6
05:30 PM	1	2	0	3	1	0	0	1	0	4	1	5	1	1	0	2	11
05:45 PM	0	3	0	3	1	0	0	1	0	1	0	1	1	1	0	2	7
Total	1	8	0	9	4	0	0	4	0	6	7	13	4	4	0	8	34
Grand Total	1	13	0	14	10	0	0	10	1	10	23	34	8	7	2	17	75
Apprch %	7.1	92.9	0		100	0	0		2.9	29.4	67.6		47.1	41.2	11.8		
Total %	1.3	17.3	0	18.7	13.3	0	0	13.3	1.3	13.3	30.7	45.3	10.7	9.3	2.7	22.7	

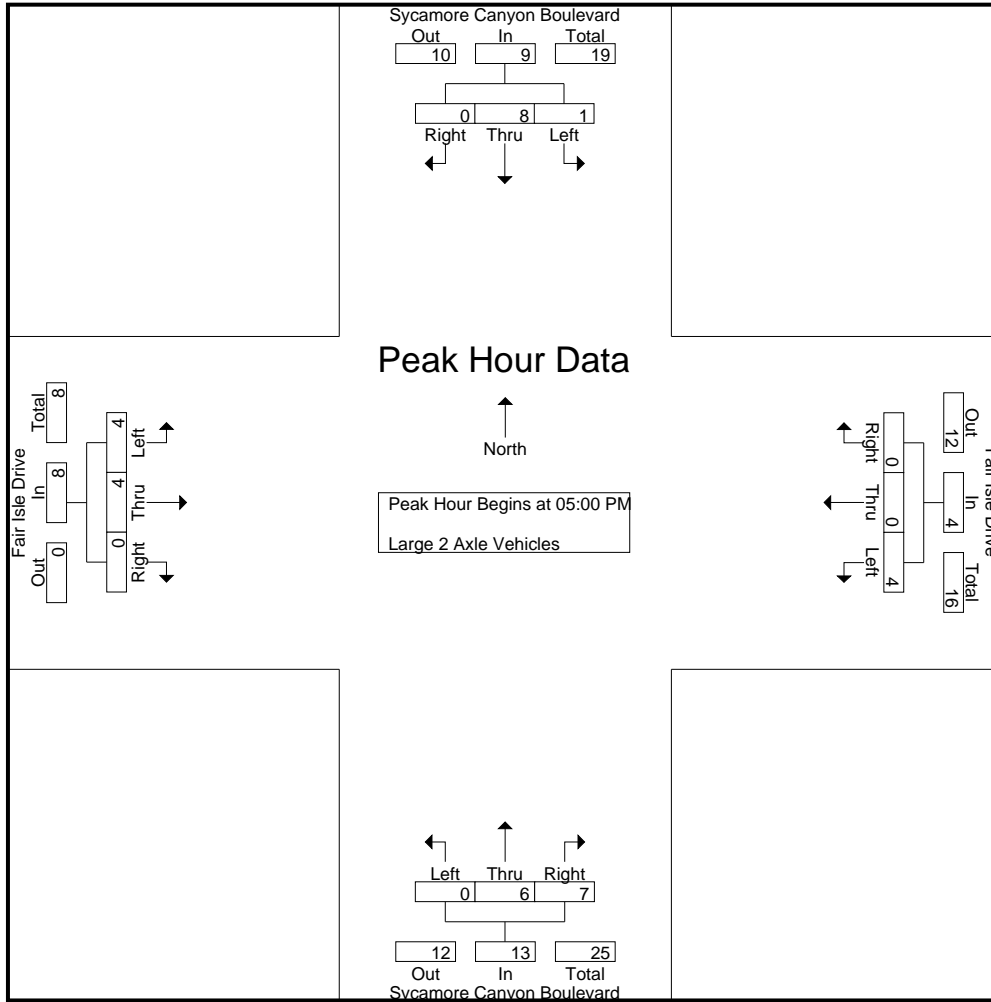
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	2	0	2	1	0	0	1	0	1	3	4	1	2	0	3	10
05:15 PM	0	1	0	1	1	0	0	1	0	0	3	3	1	0	0	1	6
05:30 PM	1	2	0	3	1	0	0	1	0	4	1	5	1	1	0	2	11
05:45 PM	0	3	0	3	1	0	0	1	0	1	0	1	1	1	0	2	7
Total Volume	1	8	0	9	4	0	0	4	0	6	7	13	4	4	0	8	34
% App. Total	11.1	88.9	0		100	0	0		0	46.2	53.8		50	50	0		
PHF	.250	.667	.000	.750	1.00	.000	.000	1.00	.000	.375	.583	.650	1.00	.500	.000	.667	.773

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
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City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	2	0	2	1	0	0	1	0	1	3	4	1	2	0	3
+15 mins.	0	1	0	1	1	0	0	1	0	0	3	3	1	0	0	1
+30 mins.	1	2	0	3	1	0	0	1	0	4	1	5	1	1	0	2
+45 mins.	0	3	0	3	1	0	0	1	0	1	0	1	1	1	0	2
Total Volume	1	8	0	9	4	0	0	4	0	6	7	13	4	4	0	8
% App. Total	11.1	88.9	0	100	0	0	0	100	0	46.2	53.8	100	50	50	0	100
PHF	.250	.667	.000	.750	1.000	.000	.000	1.000	.000	.375	.583	.650	1.000	.500	.000	.667

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	2	2	4	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	3	9	12	0	0	0	0	12
05:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	1	3	4	0	0	0	0	5
Grand Total	0	1	0	1	0	0	0	0	0	4	12	16	0	0	0	0	17
Apprch %	0	100	0		0	0	0		0	25	75		0	0	0		
Total %	0	5.9	0	5.9	0	0	0	0	0	23.5	70.6	94.1	0	0	0	0	

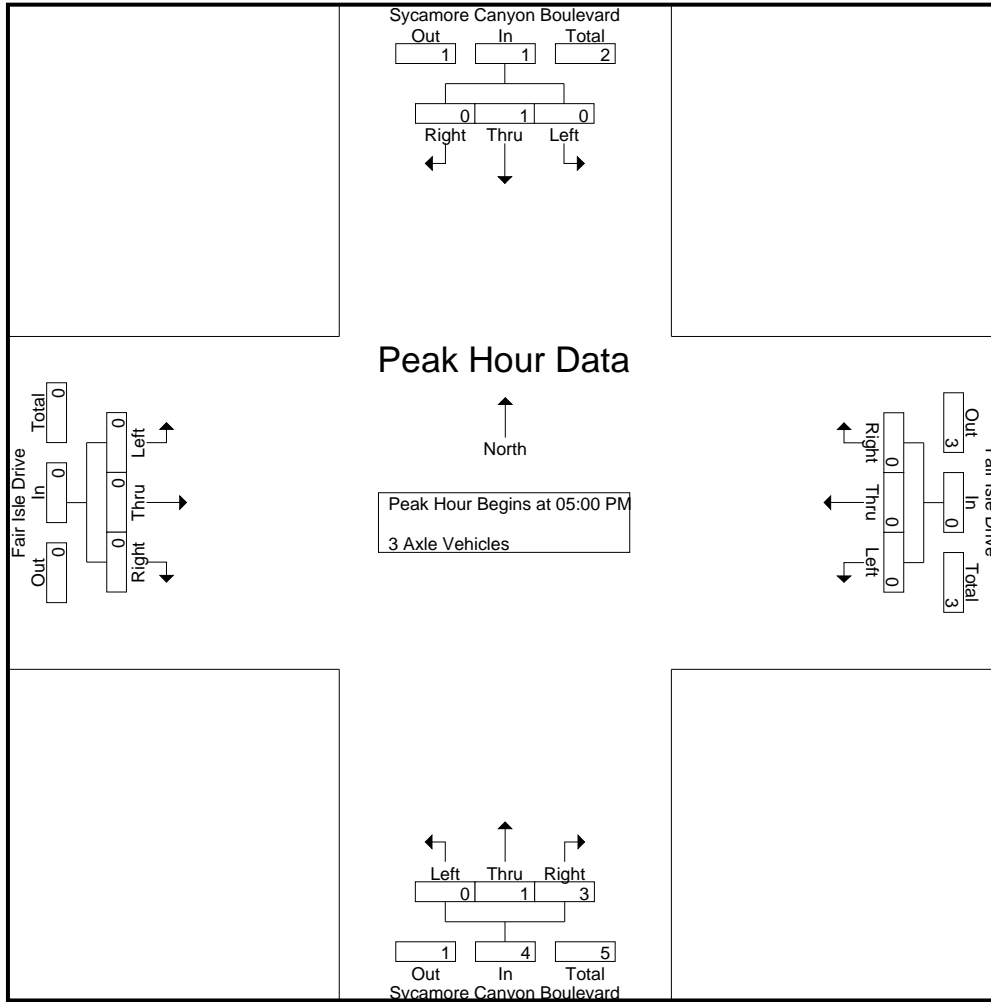
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	1	3	4	0	0	0	0	5
% App. Total	0	100	0		0	0	0		0	25	75		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.375	.500	.000	.000	.000	.000	.625

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	1	3	4	0	0	0	0
% App. Total	0	100	0	0	0	0	0	0	0	25	75	0	0	0	0	0
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.375	.500	.000	.000	.000	.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	0	0	0	0	12	12	0	0	0	0	12
04:30 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3
04:45 PM	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	6
Total	0	0	0	0	0	0	0	0	0	0	27	27	0	0	0	0	27
05:00 PM	0	0	0	0	0	0	0	0	0	0	10	10	0	0	0	0	10
05:15 PM	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	5
05:45 PM	0	0	0	0	0	0	0	0	0	0	8	8	0	0	0	0	8
Total	0	0	0	0	0	0	0	0	0	0	29	29	0	0	0	0	29
Grand Total	0	0	0	0	0	0	0	0	0	0	56	56	0	0	0	0	56
Apprch %	0	0	0		0	0	0		0	0	100		0	0	0		
Total %	0	0	0		0	0	0		0	0	100	100	0	0	0		

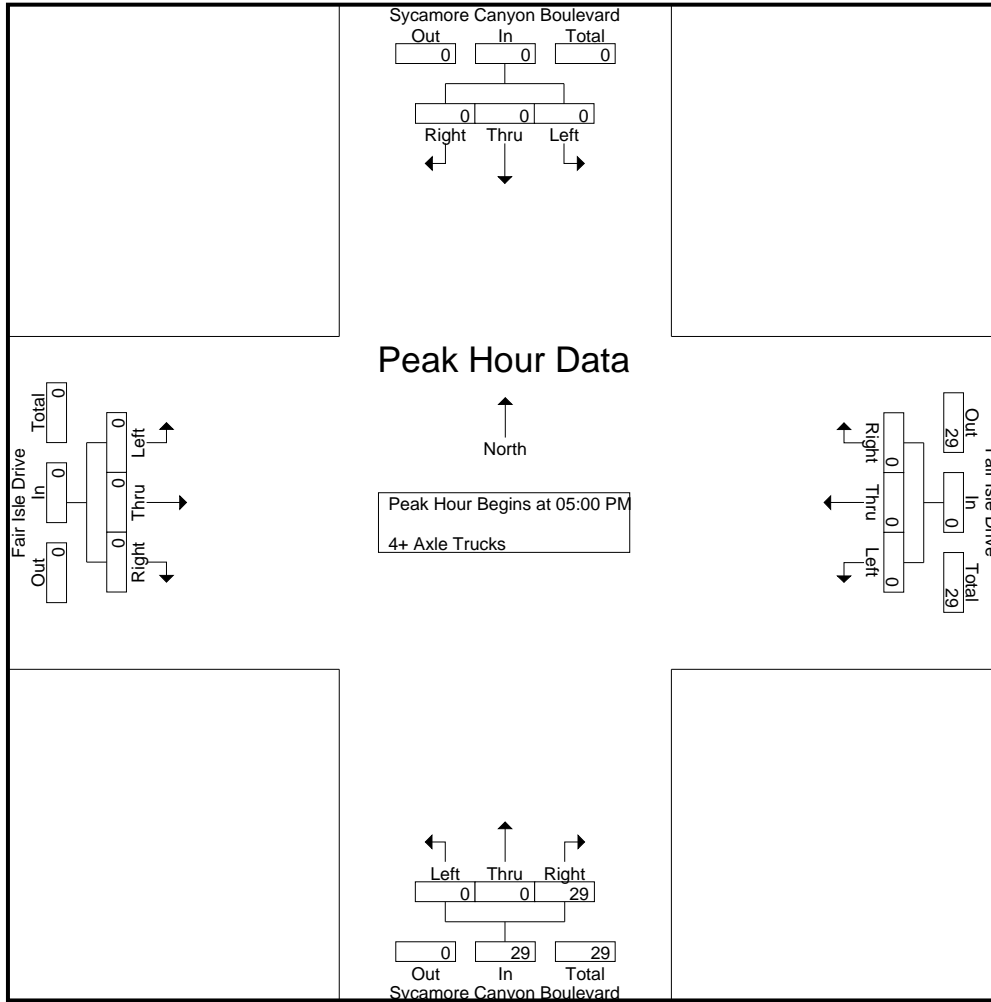
Start Time	Sycamore Canyon Boulevard Southbound				Fair Isle Drive Westbound				Sycamore Canyon Boulevard Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	0	0	0	0	10	10	0	0	0	0	10
05:15 PM	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	5
05:45 PM	0	0	0	0	0	0	0	0	0	0	8	8	0	0	0	0	8
Total Volume	0	0	0	0	0	0	0	0	0	0	29	29	0	0	0	0	29
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.725	.725	.000	.000	.000	.000	.725

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Riverside
 N/S: Sycamore Canyon Boulevard
 E/W: Fair Isle Drive
 Weather: Clear

File Name : 01_RIV_Sycamore_Fair Isle PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	10	10	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	8	8	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	29	29	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	100	100	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.725	.725	.000	.000	.000	.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	49	114	163	9	0	0	9	53	27	0	80	252
07:15 AM	0	0	0	0	0	54	116	170	11	1	1	13	47	21	0	68	251
07:30 AM	0	0	0	0	0	59	123	182	16	1	1	18	59	32	0	91	291
07:45 AM	0	0	0	0	0	88	126	214	21	0	0	21	57	39	0	96	331
Total	0	0	0	0	0	250	479	729	57	2	2	61	216	119	0	335	1125
08:00 AM	0	0	0	0	0	59	92	151	11	2	1	14	48	56	0	104	269
08:15 AM	0	0	0	0	0	46	75	121	8	0	1	9	45	38	0	83	213
08:30 AM	0	0	0	0	0	47	96	143	15	0	0	15	59	39	0	98	256
08:45 AM	0	0	0	0	0	36	67	103	17	1	1	19	55	28	0	83	205
Total	0	0	0	0	0	188	330	518	51	3	3	57	207	161	0	368	943
Grand Total	0	0	0	0	0	438	809	1247	108	5	5	118	423	280	0	703	2068
Apprch %	0	0	0		0	35.1	64.9		91.5	4.2	4.2		60.2	39.8	0		
Total %	0	0	0	0	0	21.2	39.1	60.3	5.2	0.2	0.2	5.7	20.5	13.5	0	34	
Passenger Vehicles	0	0	0	0	0	417	801	1218	107	5	5	117	304	273	0	577	1912
% Passenger Vehicles	0	0	0	0	0	95.2	99	97.7	99.1	100	100	99.2	71.9	97.5	0	82.1	92.5
Large 2 Axle Vehicles	0	0	0	0	0	6	7	13	1	0	0	1	31	6	0	37	51
% Large 2 Axle Vehicles	0	0	0	0	0	1.4	0.9	1	0.9	0	0	0.8	7.3	2.1	0	5.3	2.5
3 Axle Vehicles	0	0	0	0	0	15	1	16	0	0	0	0	8	1	0	9	25
% 3 Axle Vehicles	0	0	0	0	0	3.4	0.1	1.3	0	0	0	0	1.9	0.4	0	1.3	1.2
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	80	0	0	80	80
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	18.9	0	0	11.4	3.9

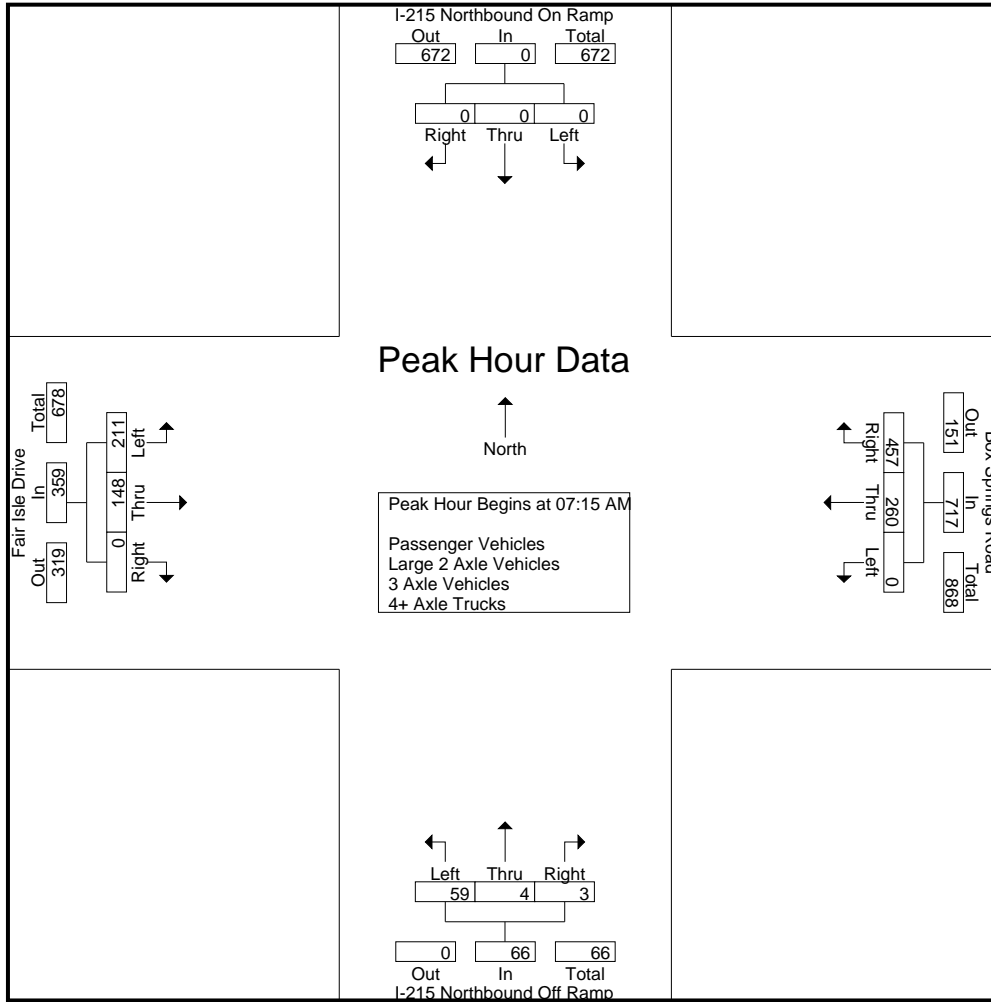
Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	54	116	170	11	1	1	13	47	21	0	68	251
07:30 AM	0	0	0	0	0	59	123	182	16	1	1	18	59	32	0	91	291
07:45 AM	0	0	0	0	0	88	126	214	21	0	0	21	57	39	0	96	331
08:00 AM	0	0	0	0	0	59	92	151	11	2	1	14	48	56	0	104	269
Total Volume	0	0	0	0	0	260	457	717	59	4	3	66	211	148	0	359	1142
% App. Total	0	0	0	0	0	36.3	63.7		89.4	6.1	4.5		58.8	41.2	0		
PHF	.000	.000	.000	.000	.000	.739	.907	.838	.702	.500	.750	.786	.894	.661	.000	.863	.863

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:45 AM							
+0 mins.	0	0	0	0	0	49	114	163	11	1	1	13	57	39	0	96
+15 mins.	0	0	0	0	0	54	116	170	16	1	1	18	48	56	0	104
+30 mins.	0	0	0	0	0	59	123	182	21	0	0	21	45	38	0	83
+45 mins.	0	0	0	0	0	88	126	214	11	2	1	14	59	39	0	98
Total Volume	0	0	0	0	0	250	479	729	59	4	3	66	209	172	0	381
% App. Total	0	0	0	0	0	34.3	65.7		89.4	6.1	4.5		54.9	45.1	0	
PHF	.000	.000	.000	.000	.000	.710	.950	.852	.702	.500	.750	.786	.886	.768	.000	.916

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	47	111	158	9	0	0	9	41	27	0	68	235
07:15 AM	0	0	0	0	0	53	114	167	11	1	1	13	39	21	0	60	240
07:30 AM	0	0	0	0	0	59	123	182	15	1	1	17	46	31	0	77	276
07:45 AM	0	0	0	0	0	77	124	201	21	0	0	21	39	37	0	76	298
Total	0	0	0	0	0	236	472	708	56	2	2	60	165	116	0	281	1049
08:00 AM	0	0	0	0	0	55	92	147	11	2	1	14	35	56	0	91	252
08:15 AM	0	0	0	0	0	46	75	121	8	0	1	9	29	36	0	65	195
08:30 AM	0	0	0	0	0	45	96	141	15	0	0	15	42	38	0	80	236
08:45 AM	0	0	0	0	0	35	66	101	17	1	1	19	33	27	0	60	180
Total	0	0	0	0	0	181	329	510	51	3	3	57	139	157	0	296	863
Grand Total	0	0	0	0	0	417	801	1218	107	5	5	117	304	273	0	577	1912
Apprch %	0	0	0	0	0	34.2	65.8		91.5	4.3	4.3		52.7	47.3	0		
Total %	0	0	0	0	0	21.8	41.9	63.7	5.6	0.3	0.3	6.1	15.9	14.3	0	30.2	

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	0	0	0	0	53	114	167	11	1	1	13	39	21	0	60	240
07:30 AM	0	0	0	0	0	59	123	182	15	1	1	17	46	31	0	77	276
07:45 AM	0	0	0	0	0	77	124	201	21	0	0	21	39	37	0	76	298
08:00 AM	0	0	0	0	0	55	92	147	11	2	1	14	35	56	0	91	252
Total Volume	0	0	0	0	0	244	453	697	58	4	3	65	159	145	0	304	1066
% App. Total	0	0	0	0	0	35	65		89.2	6.2	4.6		52.3	47.7	0		
PHF	.000	.000	.000	.000	.000	.792	.913	.867	.690	.500	.750	.774	.864	.647	.000	.835	.894

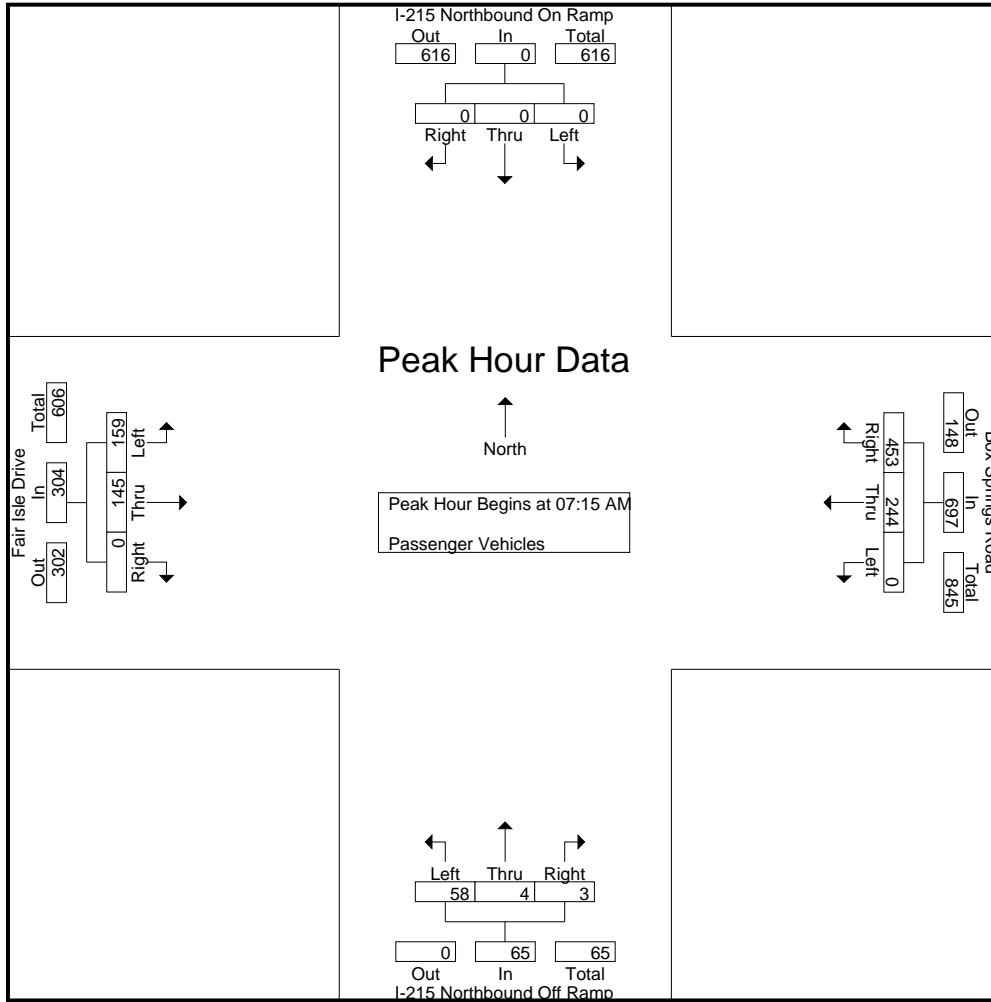
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	53	114	167	11	1	1	13	39	21	0	60
+15 mins.	0	0	0	0	0	59	123	182	15	1	1	17	46	31	0	77
+30 mins.	0	0	0	0	0	77	124	201	21	0	0	21	39	37	0	76
+45 mins.	0	0	0	0	0	55	92	147	11	2	1	14	35	56	0	91
Total Volume	0	0	0	0	0	244	453	697	58	4	3	65	159	145	0	304
% App. Total	0	0	0	0	0	35	65		89.2	6.2	4.6		52.3	47.7	0	
PHF	.000	.000	.000	.000	.000	.792	.913	.867	.690	.500	.750	.774	.864	.647	.000	.835

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
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 Corona, CA 92878
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County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	1	3	4	0	0	0	0	1	0	0	1	5
07:15 AM	0	0	0	0	0	1	2	3	0	0	0	0	1	0	0	1	4
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	6	1	0	7	8
07:45 AM	0	0	0	0	0	0	1	1	0	0	0	0	5	2	0	7	8
Total	0	0	0	0	0	2	6	8	1	0	0	1	13	3	0	16	25
08:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	7	0	0	7	8
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4	4
08:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	2	0	0	2	4
08:45 AM	0	0	0	0	0	1	1	2	0	0	0	0	7	1	0	8	10
Total	0	0	0	0	0	4	1	5	0	0	0	0	18	3	0	21	26
Grand Total	0	0	0	0	0	6	7	13	1	0	0	1	31	6	0	37	51
Apprch %	0	0	0		0	46.2	53.8		100	0	0		83.8	16.2	0		
Total %	0	0	0		0	11.8	13.7	25.5	2	0	0	2	60.8	11.8	0	72.5	

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	0	0	0	0	1	2	3	0	0	0	0	1	0	0	1	4
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	6	1	0	7	8
07:45 AM	0	0	0	0	0	0	1	1	0	0	0	0	5	2	0	7	8
08:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	7	0	0	7	8
Total Volume	0	0	0	0	0	2	3	5	1	0	0	1	19	3	0	22	28
% App. Total	0	0	0		0	40	60		100	0	0		86.4	13.6	0		
PHF	.000	.000	.000	.000	.000	.500	.375	.417	.250	.000	.000	.250	.679	.375	.000	.786	.875

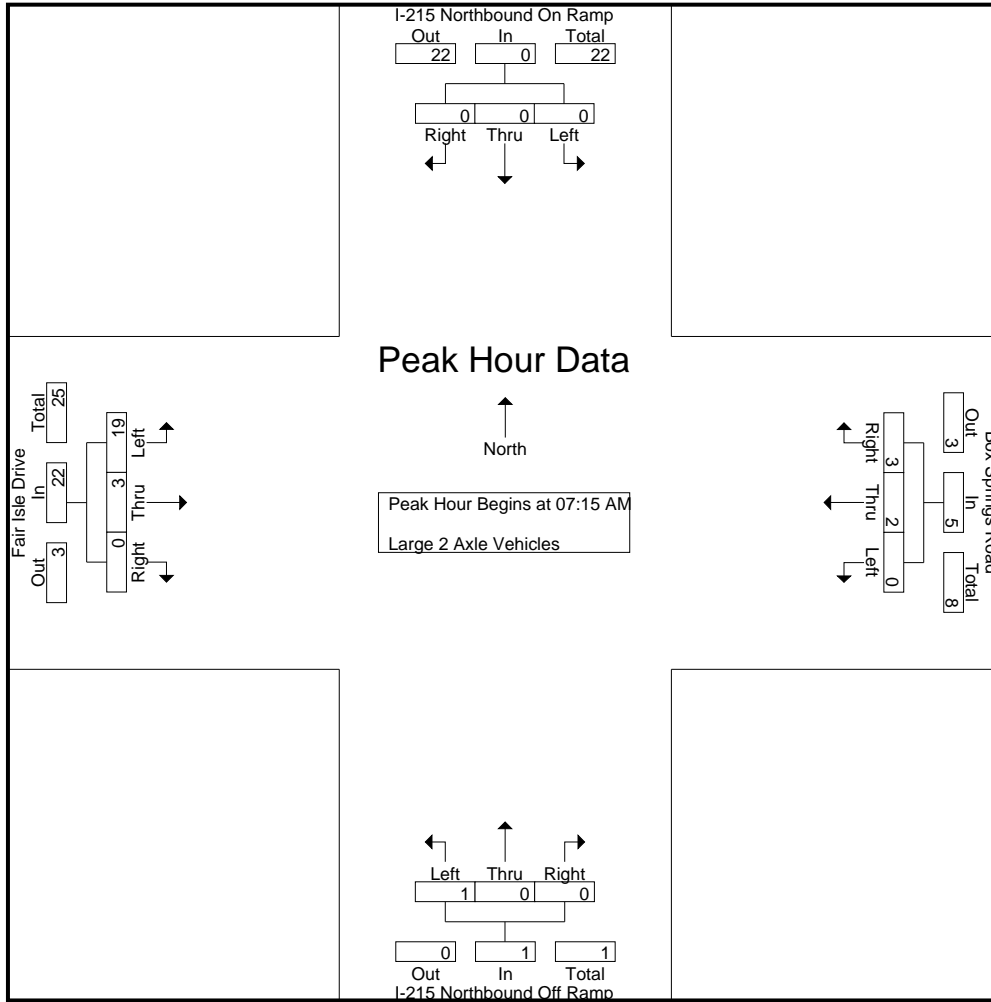
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	1	2	3	0	0	0	0	1	0	0	1
+15 mins.	0	0	0	0	0	0	0	0	1	0	0	1	6	1	0	7
+30 mins.	0	0	0	0	0	0	1	1	0	0	0	0	5	2	0	7
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	7	0	0	7
Total Volume	0	0	0	0	0	2	3	5	1	0	0	1	19	3	0	22
% App. Total	0	0	0	0	0	40	60	100	100	0	0	0	86.4	13.6	0	0
PHF	.000	.000	.000	.000	.000	.500	.375	.417	.250	.000	.000	.250	.679	.375	.000	.786

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	2	0	0	2	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	11	1	12	0	0	0	0	3	0	0	3	15
Total	0	0	0	0	0	12	1	13	0	0	0	0	5	0	0	5	18
08:00 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
Total	0	0	0	0	0	3	0	3	0	0	0	0	3	1	0	4	7
Grand Total	0	0	0	0	0	15	1	16	0	0	0	0	8	1	0	9	25
Apprch %	0	0	0		0	93.8	6.2		0	0	0		88.9	11.1	0		
Total %	0	0	0		0	60	4	64	0	0	0		32	4	0	36	

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	11	1	12	0	0	0	0	3	0	0	3	15
08:00 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
Total Volume	0	0	0	0	0	14	1	15	0	0	0	0	3	0	0	3	18
% App. Total	0	0	0		0	93.3	6.7		0	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.318	.250	.313	.000	.000	.000	.000	.250	.000	.000	.250	.300

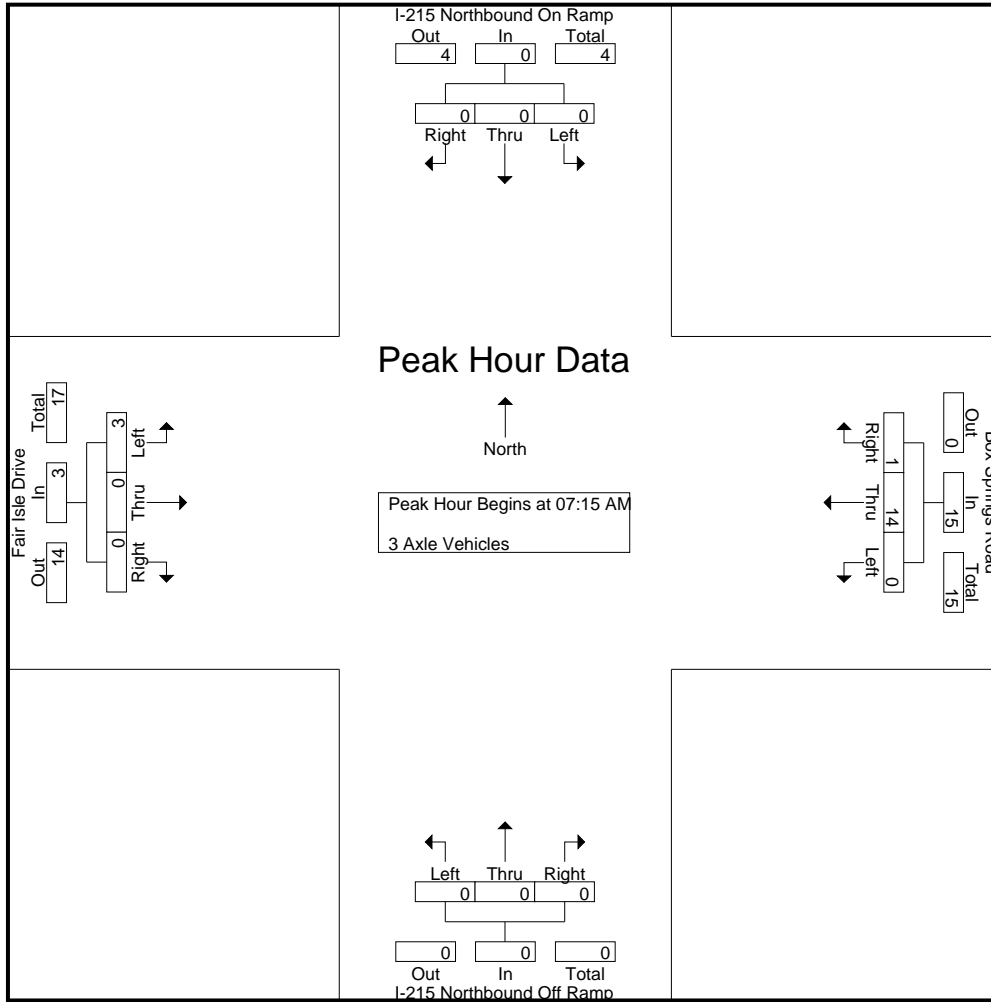
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	11	1	12	0	0	0	0	3	0	0	3
+45 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	14	1	15	0	0	0	0	3	0	0	3
% App. Total	0	0	0	0	0	93.3	6.7		0	0	0	0	100	0	0	
PHF	.000	.000	.000	.000	.000	.318	.250	.313	.000	.000	.000	.000	.250	.000	.000	.250

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	9
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10	10
Total	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	33	33
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14	14
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15	15
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12	12
Total	0	0	0	0	0	0	0	0	0	0	0	0	47	0	0	47	47
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	80	0	0	80	80
Apprch %	0	0	0		0	0	0		0	0	0		100	0	0		
Total %	0	0	0		0	0	0		0	0	0		100	0	0	100	

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10	10
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	30	30
% App. Total	0	0	0		0	0	0		0	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.750

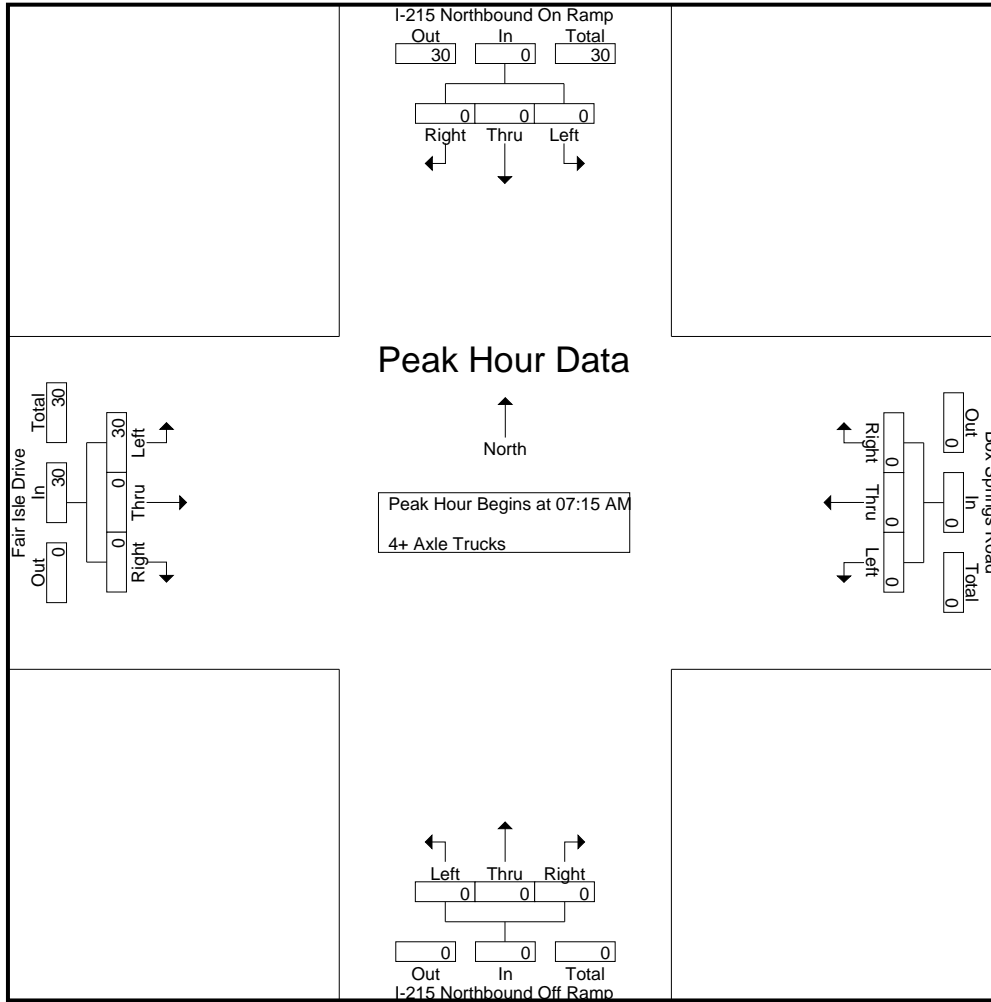
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	30
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	56	72	128	12	0	0	12	89	96	0	185	325
04:15 PM	0	0	0	0	0	52	71	123	14	0	3	17	72	132	0	204	344
04:30 PM	0	0	0	0	0	55	63	118	31	0	0	31	89	148	0	237	386
04:45 PM	0	0	0	0	0	44	66	110	22	2	2	26	86	126	0	212	348
Total	0	0	0	0	0	207	272	479	79	2	5	86	336	502	0	838	1403
05:00 PM	0	0	0	0	0	43	57	100	20	1	1	22	85	159	0	244	366
05:15 PM	0	0	0	0	0	46	71	117	33	0	6	39	67	182	0	249	405
05:30 PM	0	0	0	0	0	51	69	120	21	1	1	23	77	159	0	236	379
05:45 PM	0	0	0	0	0	56	53	109	22	0	0	22	67	166	0	233	364
Total	0	0	0	0	0	196	250	446	96	2	8	106	296	666	0	962	1514
Grand Total	0	0	0	0	0	403	522	925	175	4	13	192	632	1168	0	1800	2917
Apprch %	0	0	0		0	43.6	56.4		91.1	2.1	6.8		35.1	64.9	0		
Total %	0	0	0		0	13.8	17.9	31.7	6	0.1	0.4	6.6	21.7	40	0	61.7	
Passenger Vehicles	0	0	0	0	0	391	520	911	175	4	13	192	546	1154	0	1700	2803
% Passenger Vehicles	0	0	0	0	0	97	99.6	98.5	100	100	100	100	86.4	98.8	0	94.4	96.1
Large 2 Axle Vehicles	0	0	0	0	0	9	2	11	0	0	0	0	16	14	0	30	41
% Large 2 Axle Vehicles	0	0	0	0	0	2.2	0.4	1.2	0	0	0	0	2.5	1.2	0	1.7	1.4
3 Axle Vehicles	0	0	0	0	0	3	0	3	0	0	0	0	10	0	0	10	13
% 3 Axle Vehicles	0	0	0	0	0	0.7	0	0.3	0	0	0	0	1.6	0	0	0.6	0.4
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	60	0	0	60	60
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	9.5	0	0	3.3	2.1

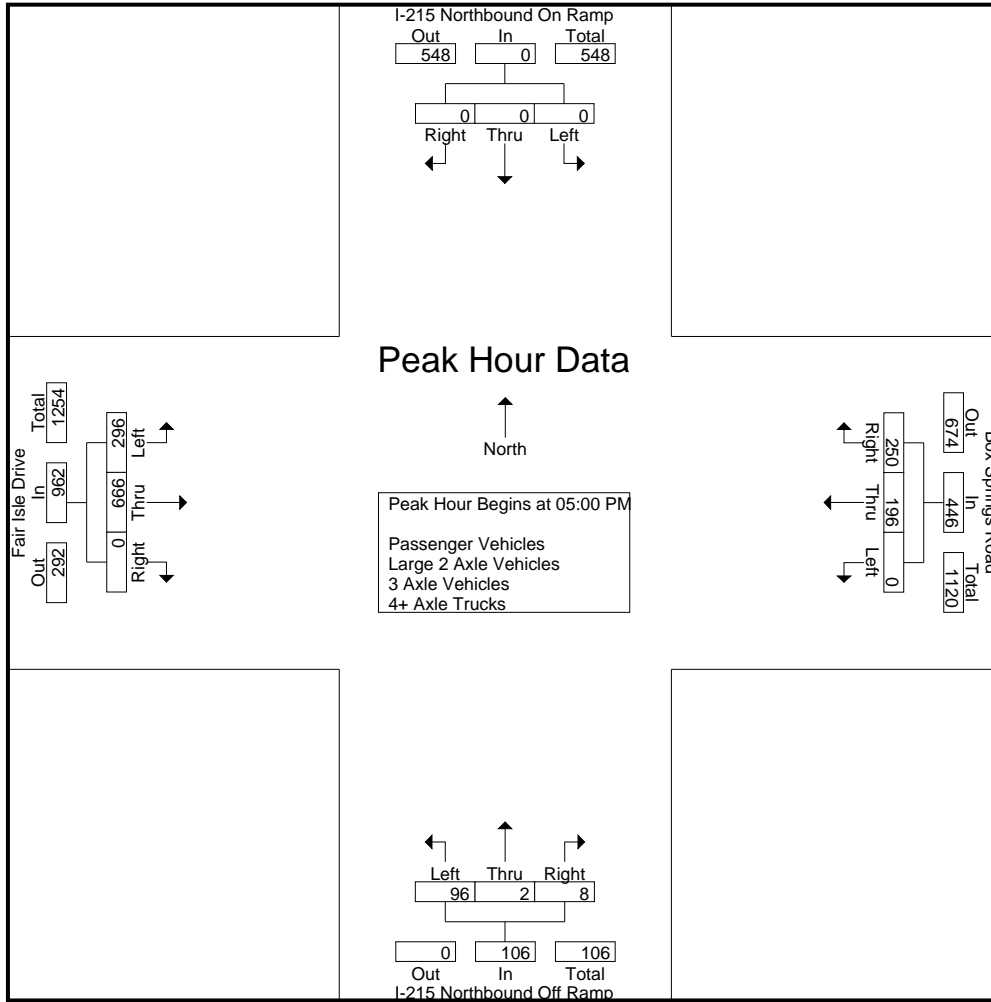
Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	43	57	100	20	1	1	22	85	159	0	244	366
05:15 PM	0	0	0	0	0	46	71	117	33	0	6	39	67	182	0	249	405
05:30 PM	0	0	0	0	0	51	69	120	21	1	1	23	77	159	0	236	379
05:45 PM	0	0	0	0	0	56	53	109	22	0	0	22	67	166	0	233	364
Total Volume	0	0	0	0	0	196	250	446	96	2	8	106	296	666	0	962	1514
% App. Total	0	0	0		0	43.9	56.1		90.6	1.9	7.5		30.8	69.2	0		
PHF	.000	.000	.000	.000	.000	.875	.880	.929	.727	.500	.333	.679	.871	.915	.000	.966	.935

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:30 PM				05:00 PM			
+0 mins.	0	0	0	0	0	56	72	128	31	0	0	31	85	159	0	244
+15 mins.	0	0	0	0	0	52	71	123	22	2	2	26	67	182	0	249
+30 mins.	0	0	0	0	0	55	63	118	20	1	1	22	77	159	0	236
+45 mins.	0	0	0	0	0	44	66	110	33	0	6	39	67	166	0	233
Total Volume	0	0	0	0	0	207	272	479	106	3	9	118	296	666	0	962
% App. Total	0	0	0	0	0	43.2	56.8		89.8	2.5	7.6		30.8	69.2	0	
PHF	.000	.000	.000	.000	.000	.924	.944	.936	.803	.375	.375	.756	.871	.915	.000	.966

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	55	72	127	12	0	0	12	81	96	0	177	316
04:15 PM	0	0	0	0	0	51	70	121	14	0	3	17	54	131	0	185	323
04:30 PM	0	0	0	0	0	52	63	115	31	0	0	31	80	146	0	226	372
04:45 PM	0	0	0	0	0	43	66	109	22	2	2	26	73	124	0	197	332
Total	0	0	0	0	0	201	271	472	79	2	5	86	288	497	0	785	1343
05:00 PM	0	0	0	0	0	42	57	99	20	1	1	22	73	155	0	228	349
05:15 PM	0	0	0	0	0	45	71	116	33	0	6	39	57	181	0	238	393
05:30 PM	0	0	0	0	0	48	68	116	21	1	1	23	70	156	0	226	365
05:45 PM	0	0	0	0	0	55	53	108	22	0	0	22	58	165	0	223	353
Total	0	0	0	0	0	190	249	439	96	2	8	106	258	657	0	915	1460
Grand Total	0	0	0	0	0	391	520	911	175	4	13	192	546	1154	0	1700	2803
Apprch %	0	0	0	0	0	42.9	57.1	91.1	2.1	6.8	32.1	67.9	0	0	0	0	60.6
Total %	0	0	0	0	0	13.9	18.6	32.5	6.2	0.1	0.5	6.8	19.5	41.2	0	60.6	

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
05:00 PM	0	0	0	0	0	42	57	99	20	1	1	22	73	155	0	228	349
05:15 PM	0	0	0	0	0	45	71	116	33	0	6	39	57	181	0	238	393
05:30 PM	0	0	0	0	0	48	68	116	21	1	1	23	70	156	0	226	365
05:45 PM	0	0	0	0	0	55	53	108	22	0	0	22	58	165	0	223	353
Total Volume	0	0	0	0	0	190	249	439	96	2	8	106	258	657	0	915	1460
% App. Total	0	0	0	0	0	43.3	56.7	90.6	1.9	7.5	28.2	71.8	0	0	0	0	
PHF	.000	.000	.000	.000	.000	.864	.877	.946	.727	.500	.333	.679	.884	.907	.000	.961	.929

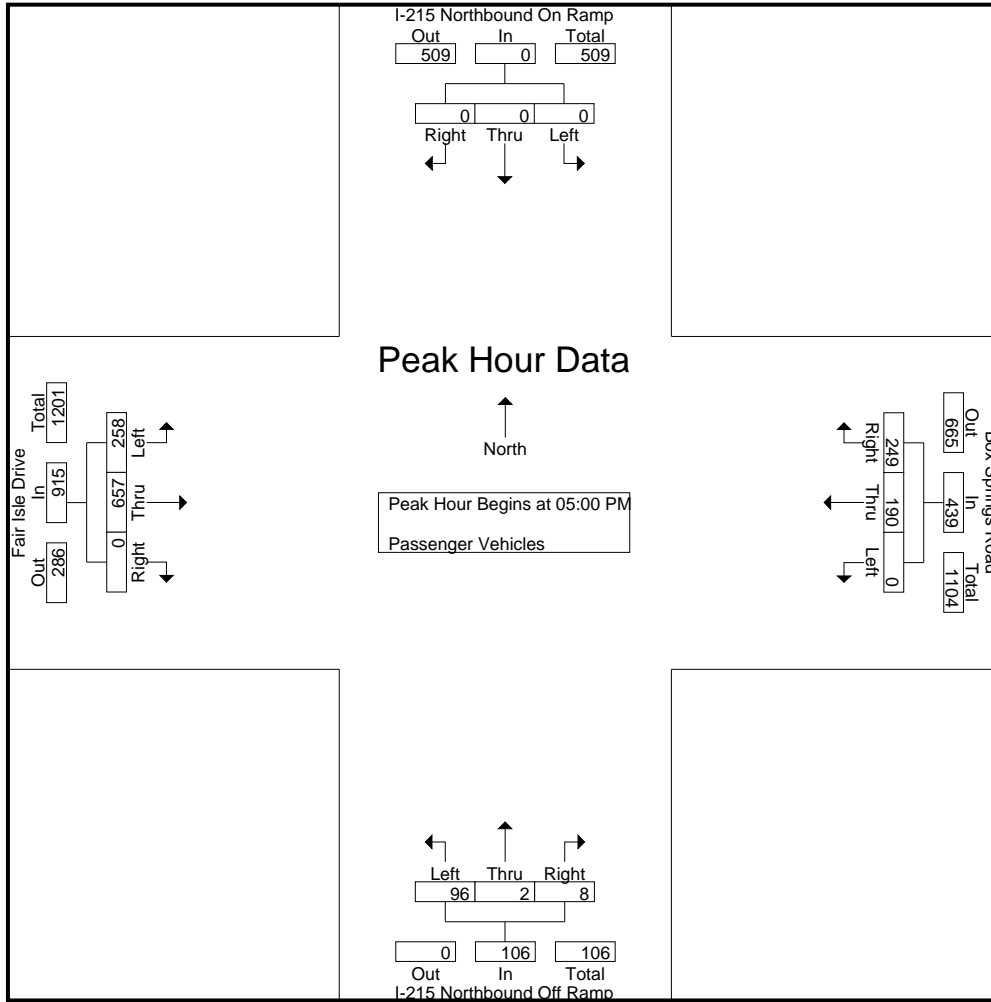
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	42	57	99	20	1	1	22	73	155	0	228
+15 mins.	0	0	0	0	0	45	71	116	33	0	6	39	57	181	0	238
+30 mins.	0	0	0	0	0	48	68	116	21	1	1	23	70	156	0	226
+45 mins.	0	0	0	0	0	55	53	108	22	0	0	22	58	165	0	223
Total Volume	0	0	0	0	0	190	249	439	96	2	8	106	258	657	0	915
% App. Total	0	0	0	0	0	43.3	56.7		90.6	1.9	7.5		28.2	71.8	0	
PHF	.000	.000	.000	.000	.000	.864	.877	.946	.727	.500	.333	.679	.884	.907	.000	.961

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	3	0	0	3	4
04:15 PM	0	0	0	0	0	1	1	2	0	0	0	0	3	1	0	4	6
04:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	2	2	0	4	6
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	4	2	0	6	7
Total	0	0	0	0	0	5	1	6	0	0	0	0	12	5	0	17	23
05:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	4	0	5	6
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	2	1	0	3	4
05:30 PM	0	0	0	0	0	1	1	2	0	0	0	0	1	3	0	4	6
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Total	0	0	0	0	0	4	1	5	0	0	0	0	4	9	0	13	18
Grand Total	0	0	0	0	0	9	2	11	0	0	0	0	16	14	0	30	41
Apprch %	0	0	0		0	81.8	18.2		0	0	0		53.3	46.7	0		
Total %	0	0	0		0	22	4.9	26.8	0	0	0		39	34.1	0	73.2	

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
05:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	4	0	5	6
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	2	1	0	3	4
05:30 PM	0	0	0	0	0	1	1	2	0	0	0	0	1	3	0	4	6
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Total Volume	0	0	0	0	0	4	1	5	0	0	0	0	4	9	0	13	18
% App. Total	0	0	0		0	80	20		0	0	0		30.8	69.2	0		
PHF	.000	.000	.000	.000	.000	1.00	.250	.625	.000	.000	.000	.000	.500	.563	.000	.650	.750

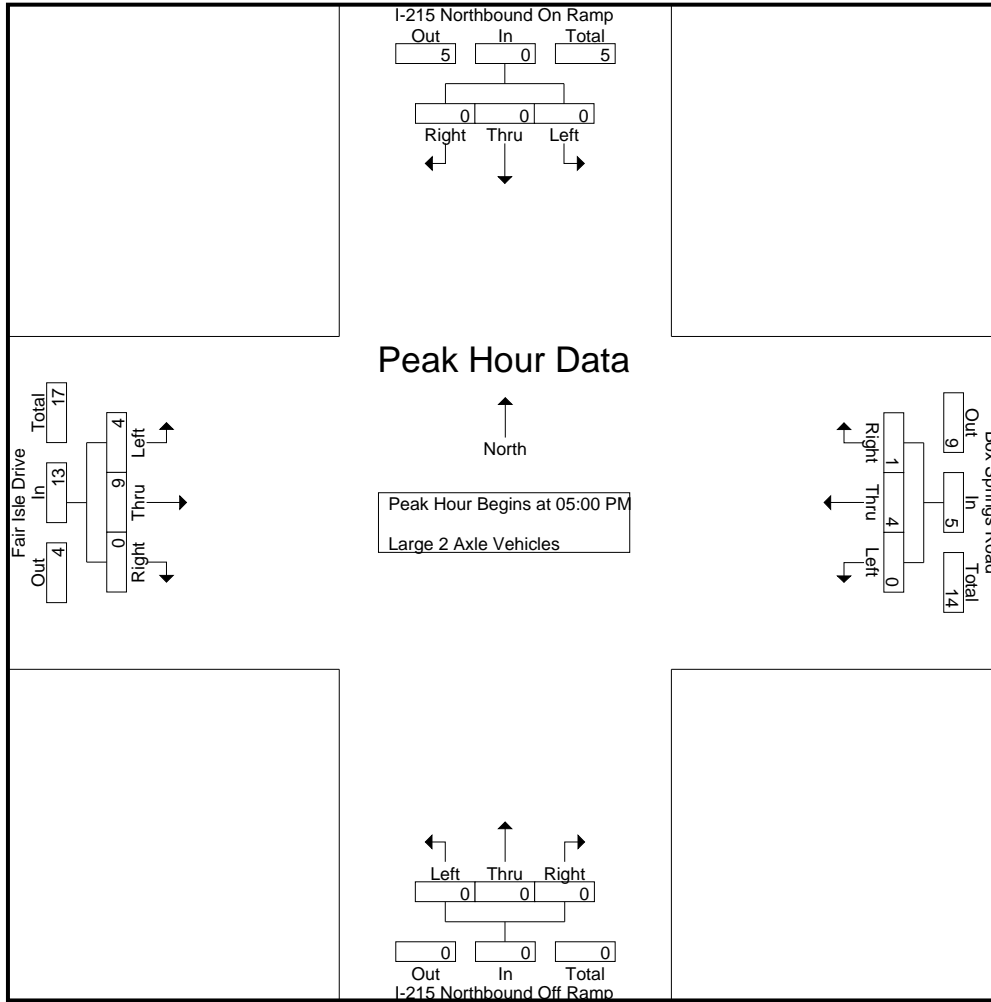
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM				
+0 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	4	0	5
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	2	1	0	3
+30 mins.	0	0	0	0	0	1	1	2	0	0	0	0	0	1	3	0	4
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	4	1	5	0	0	0	0	4	9	0	0	13
% App. Total	0	0	0	0	0	80	20		0	0	0	0	30.8	69.2	0		
PHF	.000	.000	.000	.000	.000	1.000	.250	.625	.000	.000	.000	.000	.500	.563	.000	.650	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	3	0	0	3	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
Total	0	0	0	0	0	1	0	1	0	0	0	0	7	0	0	7	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
05:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	2	0	2	0	0	0	0	3	0	0	3	5
Grand Total	0	0	0	0	0	3	0	3	0	0	0	0	10	0	0	10	13
Apprch %	0	0	0		0	100	0		0	0	0		100	0	0		
Total %	0	0	0		0	23.1	0	23.1	0	0	0		76.9	0	0	76.9	

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
05:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	3	0	0	3	5
% App. Total	0	0	0		0	100	0		0	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.375	.000	.000	.375	.625

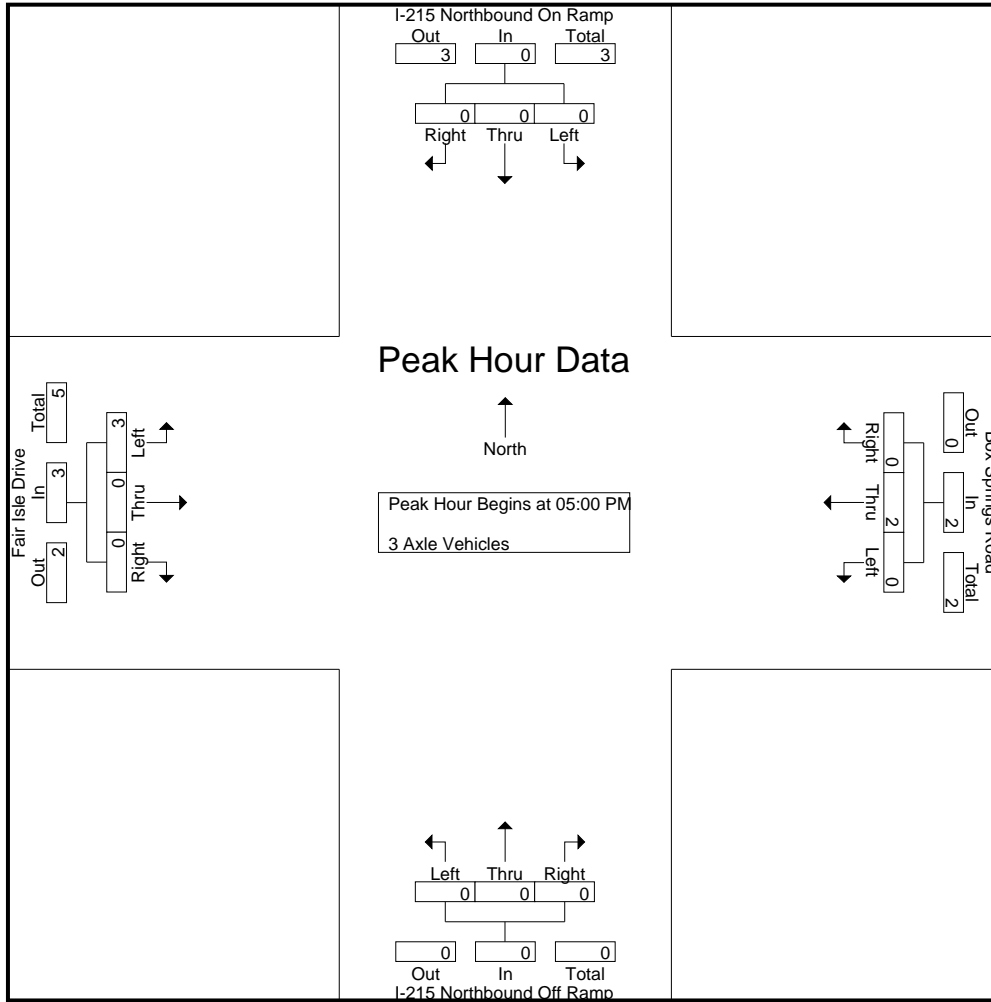
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
+30 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	3	0	0	3
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	100	0	0	0
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.375	.000	.000	.375

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15	15
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
Total	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29	29
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	11
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	8
Total	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0	31	31
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	60	0	0	60	60
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	

Start Time	I-215 Northbound On Ramp Southbound				Box Springs Road Westbound				I-215 Northbound Off Ramp Northbound				Fair Isle Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	11
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	8
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0	31	31
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.705	.000	.000	.705	.705

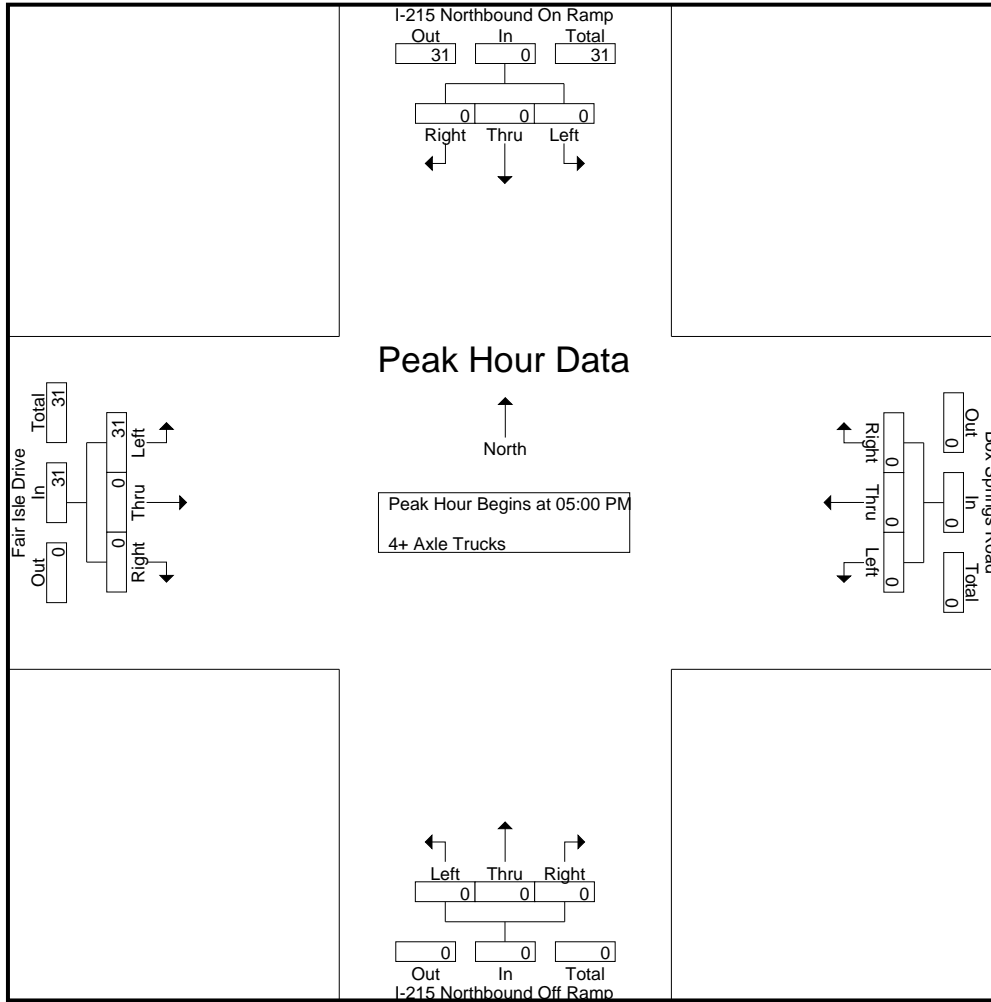
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

County of Riverside
 N/S: I-215 Northbound Ramps
 E/W: Fair Isle Drive/Box Springs Road
 Weather: Clear

File Name : 02_CRV_215N_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0	31
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.705	.000	.000	.705

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Wordsworth Road North
 Weather: Clear

File Name : 03_MRV_Morton_Wordsworth N AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Total Volume

Start Time	Morton Road Southbound			Wordsworth Road North Westbound			Morton Road Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	0	3	3	1	0	1	0	0	0	4
07:15 AM	0	8	8	1	0	1	2	0	2	11
07:30 AM	0	5	5	0	1	1	4	1	5	11
07:45 AM	0	6	6	1	0	1	2	3	5	12
Total	0	22	22	3	1	4	8	4	12	38
08:00 AM	0	7	7	1	0	1	5	1	6	14
08:15 AM	0	2	2	2	0	2	0	1	1	5
08:30 AM	0	7	7	0	0	0	2	1	3	10
08:45 AM	1	2	3	0	0	0	2	0	2	5
Total	1	18	19	3	0	3	9	3	12	34
Grand Total	1	40	41	6	1	7	17	7	24	72
Apprch %	2.4	97.6		85.7	14.3		70.8	29.2		
Total %	1.4	55.6	56.9	8.3	1.4	9.7	23.6	9.7	33.3	

Start Time	Morton Road Southbound			Wordsworth Road North Westbound			Morton Road Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:15 AM	0	8	8	1	0	1	2	0	2	11
07:30 AM	0	5	5	0	1	1	4	1	5	11
07:45 AM	0	6	6	1	0	1	2	3	5	12
08:00 AM	0	7	7	1	0	1	5	1	6	14
Total Volume	0	26	26	3	1	4	13	5	18	48
% App. Total	0	100		75	25		72.2	27.8		
PHF	.000	.813	.813	.750	.250	1.00	.650	.417	.750	.857

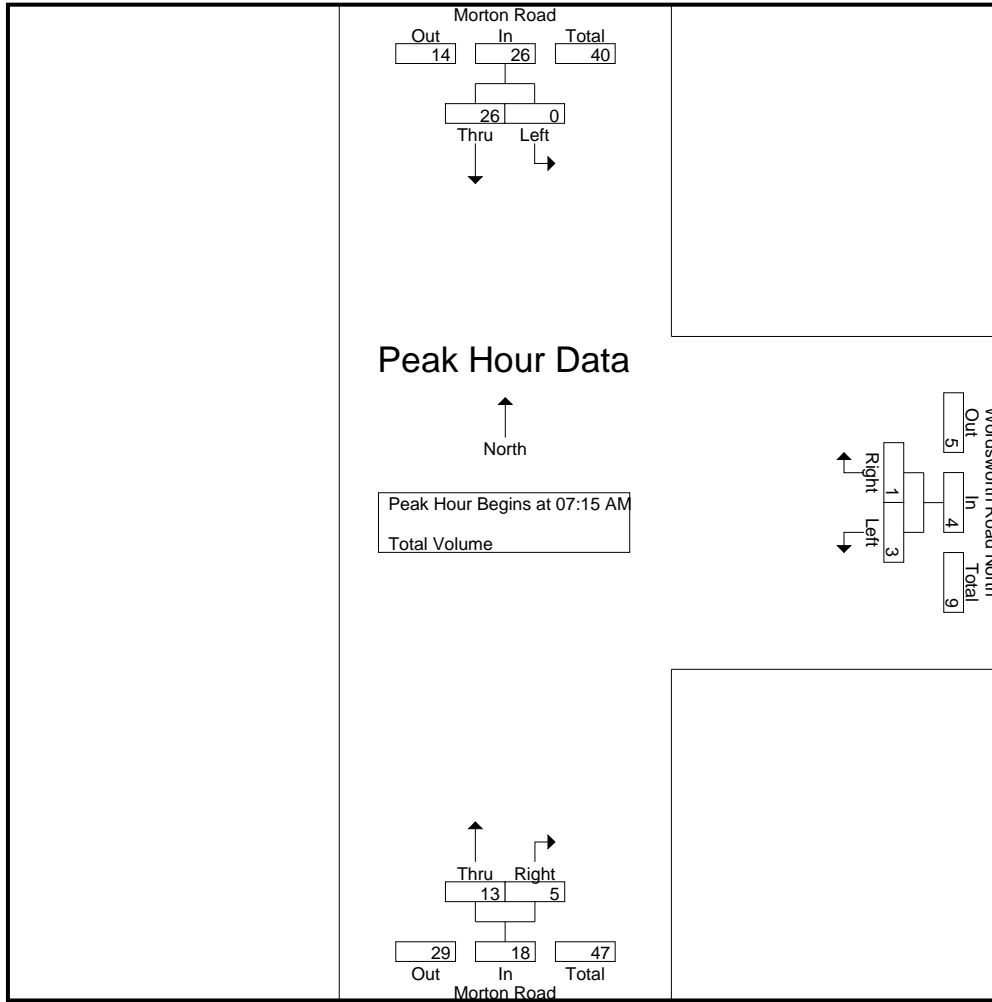
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Wordsworth Road North
 Weather: Clear

File Name : 03_MRV_Morton_Wordsworth N AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM			07:30 AM			07:45 AM		
+0 mins.	0	8	8	0	1	1	2	0	2
+15 mins.	0	5	5	1	0	1	4	1	5
+30 mins.	0	6	6	1	0	1	2	3	5
+45 mins.	0	7	7	2	0	2	5	1	6
Total Volume	0	26	26	4	1	5	13	5	18
% App. Total	0	100		80	20		72.2	27.8	
PHF	.000	.813	.813	.500	.250	.625	.650	.417	.750

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Wordsworth Road North
 Weather: Clear

File Name : 03_MRV_Morton_Wordsworth N PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Total Volume

Start Time	Morton Road Southbound			Wordsworth Road North Westbound			Morton Road Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	0	2	2	0	0	0	3	0	3	5
04:15 PM	0	11	11	1	0	1	5	3	8	20
04:30 PM	0	5	5	1	0	1	8	3	11	17
04:45 PM	0	7	7	0	2	2	7	3	10	19
Total	0	25	25	2	2	4	23	9	32	61
05:00 PM	0	4	4	0	0	0	5	1	6	10
05:15 PM	0	3	3	1	0	1	13	6	19	23
05:30 PM	1	7	8	1	0	1	7	1	8	17
05:45 PM	2	6	8	0	1	1	10	0	10	19
Total	3	20	23	2	1	3	35	8	43	69
Grand Total	3	45	48	4	3	7	58	17	75	130
Apprch %	6.2	93.8		57.1	42.9		77.3	22.7		
Total %	2.3	34.6	36.9	3.1	2.3	5.4	44.6	13.1	57.7	

Start Time	Morton Road Southbound			Wordsworth Road North Westbound			Morton Road Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:30 PM	0	5	5	1	0	1	8	3	11	17
04:45 PM	0	7	7	0	2	2	7	3	10	19
05:00 PM	0	4	4	0	0	0	5	1	6	10
05:15 PM	0	3	3	1	0	1	13	6	19	23
Total Volume	0	19	19	2	2	4	33	13	46	69
% App. Total	0	100		50	50		71.7	28.3		
PHF	.000	.679	.679	.500	.250	.500	.635	.542	.605	.750

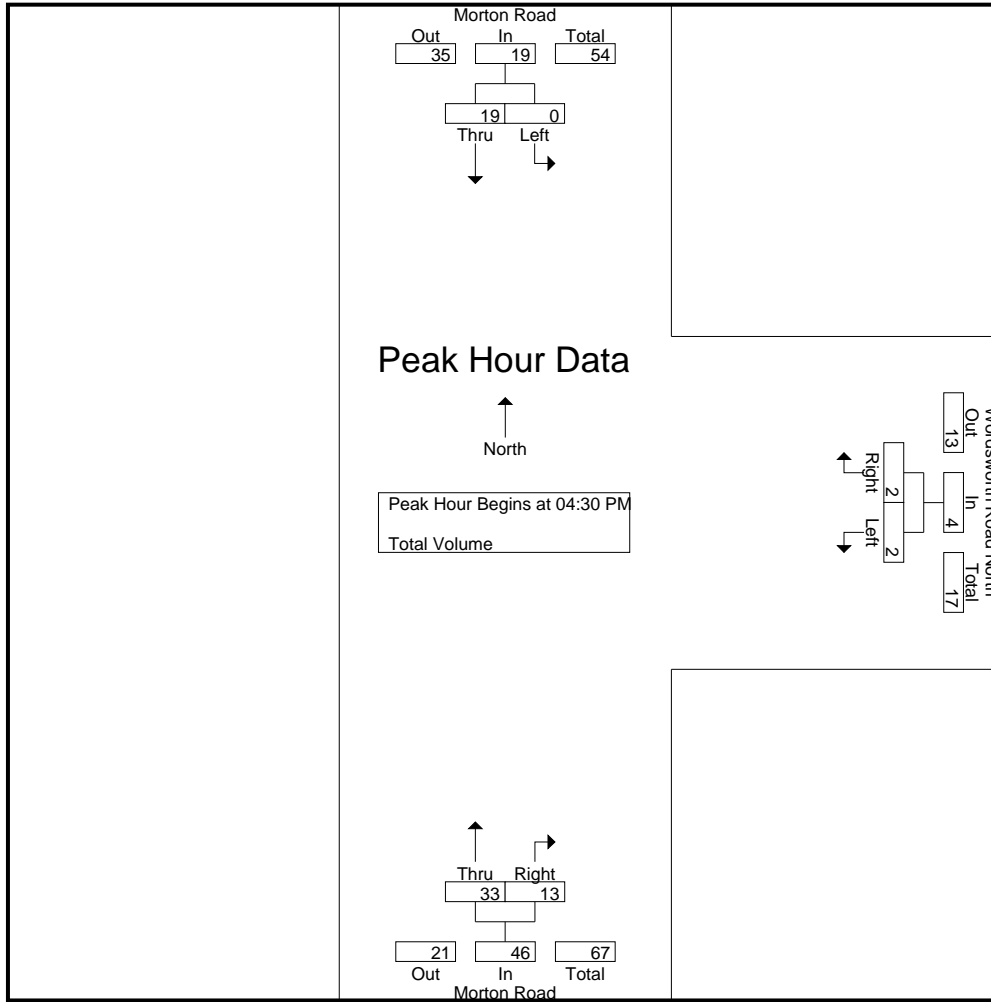
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Wordsworth Road North
 Weather: Clear

File Name : 03_MRV_Morton_Wordsworth N PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:15 PM			04:00 PM			04:30 PM		
+0 mins.	0	11	11	0	0	0	8	3	11
+15 mins.	0	5	5	1	0	1	7	3	10
+30 mins.	0	7	7	1	0	1	5	1	6
+45 mins.	0	4	4	0	2	2	13	6	19
Total Volume	0	27	27	2	2	4	33	13	46
% App. Total	0	100		50	50		71.7	28.3	
PHF	.000	.614	.614	.500	.250	.500	.635	.542	.605

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Wordsworth Road South
 Weather: Clear

File Name : 04_MRV_Morton_Wordsworth S AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Total Volume

Start Time	Morton Road Southbound			Wordsworth Road South Westbound			Morton Road Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	0	4	4	7	0	7	0	2	2	13
07:15 AM	0	8	8	3	0	3	2	2	4	15
07:30 AM	0	4	4	11	0	11	5	5	10	25
07:45 AM	1	5	6	15	0	15	5	1	6	27
Total	1	21	22	36	0	36	12	10	22	80
08:00 AM	0	7	7	8	0	8	6	3	9	24
08:15 AM	0	6	6	17	0	17	1	3	4	27
08:30 AM	0	7	7	10	0	10	3	2	5	22
08:45 AM	0	2	2	7	0	7	2	1	3	12
Total	0	22	22	42	0	42	12	9	21	85
Grand Total	1	43	44	78	0	78	24	19	43	165
Apprch %	2.3	97.7		100	0		55.8	44.2		
Total %	0.6	26.1	26.7	47.3	0	47.3	14.5	11.5	26.1	

Start Time	Morton Road Southbound			Wordsworth Road South Westbound			Morton Road Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:30 AM	0	4	4	11	0	11	5	5	10	25
07:45 AM	1	5	6	15	0	15	5	1	6	27
08:00 AM	0	7	7	8	0	8	6	3	9	24
08:15 AM	0	6	6	17	0	17	1	3	4	27
Total Volume	1	22	23	51	0	51	17	12	29	103
% App. Total	4.3	95.7		100	0		58.6	41.4		
PHF	.250	.786	.821	.750	.000	.750	.708	.600	.725	.954

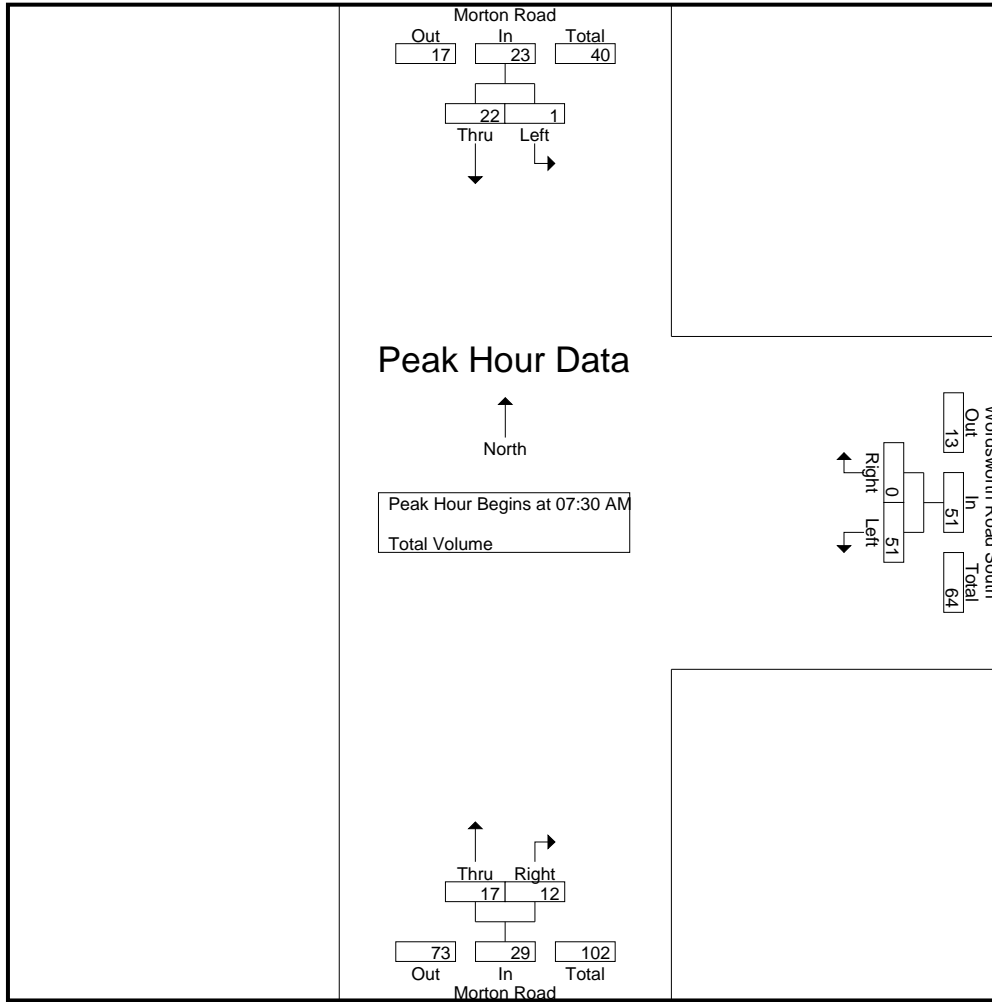
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Wordsworth Road South
 Weather: Clear

File Name : 04_MRV_Morton_Wordsworth S AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM			07:30 AM			07:15 AM		
+0 mins.	1	5	6	11	0	11	2	2	4
+15 mins.	0	7	7	15	0	15	5	5	10
+30 mins.	0	6	6	8	0	8	5	1	6
+45 mins.	0	7	7	17	0	17	6	3	9
Total Volume	1	25	26	51	0	51	18	11	29
% App. Total	3.8	96.2		100	0		62.1	37.9	
PHF	.250	.893	.929	.750	.000	.750	.750	.550	.725

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Wordsworth Road South
 Weather: Clear

File Name : 04_MRV_Morton_Wordsworth S PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Total Volume

Start Time	Morton Road Southbound			Wordsworth Road South Westbound			Morton Road Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	0	2	2	13	0	13	3	10	13	28
04:15 PM	0	11	11	10	0	10	8	10	18	39
04:30 PM	0	6	6	9	1	10	10	12	22	38
04:45 PM	0	7	7	6	0	6	11	9	20	33
Total	0	26	26	38	1	39	32	41	73	138
05:00 PM	0	4	4	7	0	7	5	7	12	23
05:15 PM	0	4	4	5	0	5	19	10	29	38
05:30 PM	0	7	7	7	0	7	8	11	19	33
05:45 PM	0	6	6	10	0	10	10	11	21	37
Total	0	21	21	29	0	29	42	39	81	131
Grand Total	0	47	47	67	1	68	74	80	154	269
Apprch %	0	100		98.5	1.5		48.1	51.9		
Total %	0	17.5	17.5	24.9	0.4	25.3	27.5	29.7	57.2	

Start Time	Morton Road Southbound			Wordsworth Road South Westbound			Morton Road Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
04:00 PM	0	2	2	13	0	13	3	10	13	28
04:15 PM	0	11	11	10	0	10	8	10	18	39
04:30 PM	0	6	6	9	1	10	10	12	22	38
04:45 PM	0	7	7	6	0	6	11	9	20	33
Total Volume	0	26	26	38	1	39	32	41	73	138
% App. Total	0	100		97.4	2.6		43.8	56.2		
PHF	.000	.591	.591	.731	.250	.750	.727	.854	.830	.885

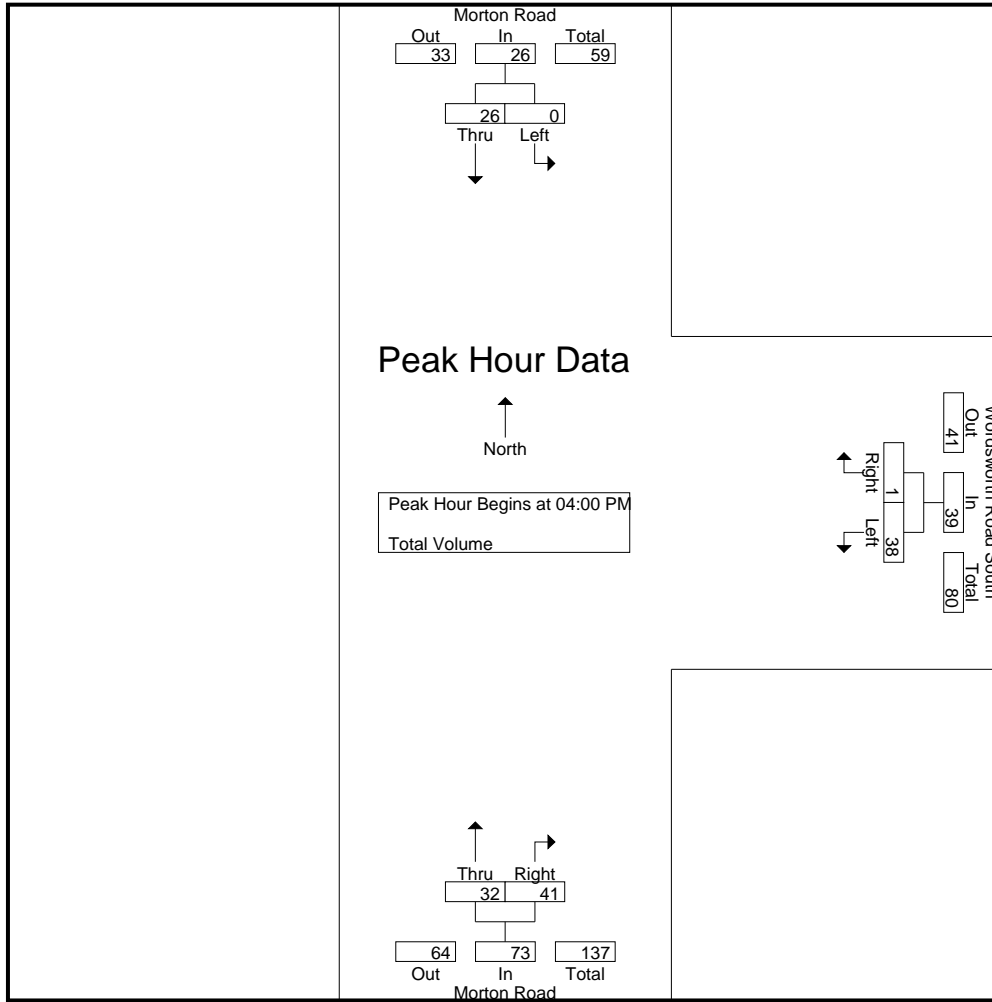
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Wordsworth Road South
 Weather: Clear

File Name : 04_MRV_Morton_Wordsworth S PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:15 PM			04:00 PM			04:30 PM		
+0 mins.	0	11	11	13	0	13	10	12	22
+15 mins.	0	6	6	10	0	10	11	9	20
+30 mins.	0	7	7	9	1	10	5	7	12
+45 mins.	0	4	4	6	0	6	19	10	29
Total Volume	0	28	28	38	1	39	45	38	83
% App. Total	0	100		97.4	2.6		54.2	45.8	
PHF	.000	.636	.636	.731	.250	.750	.592	.792	.716

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	2	24	26	143	0	143	2	20	22	191
07:15 AM	1	21	22	159	1	160	4	21	25	207
07:30 AM	4	22	26	169	1	170	10	24	34	230
07:45 AM	5	17	22	184	1	185	7	33	40	247
Total	12	84	96	655	3	658	23	98	121	875
08:00 AM	6	19	25	127	2	129	10	46	56	210
08:15 AM	3	26	29	111	2	113	2	39	41	183
08:30 AM	3	25	28	105	3	108	4	30	34	170
08:45 AM	4	13	17	91	3	94	3	27	30	141
Total	16	83	99	434	10	444	19	142	161	704
Grand Total	28	167	195	1089	13	1102	42	240	282	1579
Apprch %	14.4	85.6		98.8	1.2		14.9	85.1		
Total %	1.8	10.6	12.3	69	0.8	69.8	2.7	15.2	17.9	
Passenger Vehicles	27	166	193	1076	12	1088	41	235	276	1557
% Passenger Vehicles	96.4	99.4	99	98.8	92.3	98.7	97.6	97.9	97.9	98.6
Large 2 Axle Vehicles	1	1	2	11	1	12	1	5	6	20
% Large 2 Axle Vehicles	3.6	0.6	1	1	7.7	1.1	2.4	2.1	2.1	1.3
3 Axle Vehicles	0	0	0	1	0	1	0	0	0	1
% 3 Axle Vehicles	0	0	0	0.1	0	0.1	0	0	0	0.1
4+ Axle Trucks	0	0	0	1	0	1	0	0	0	1
% 4+ Axle Trucks	0	0	0	0.1	0	0.1	0	0	0	0.1

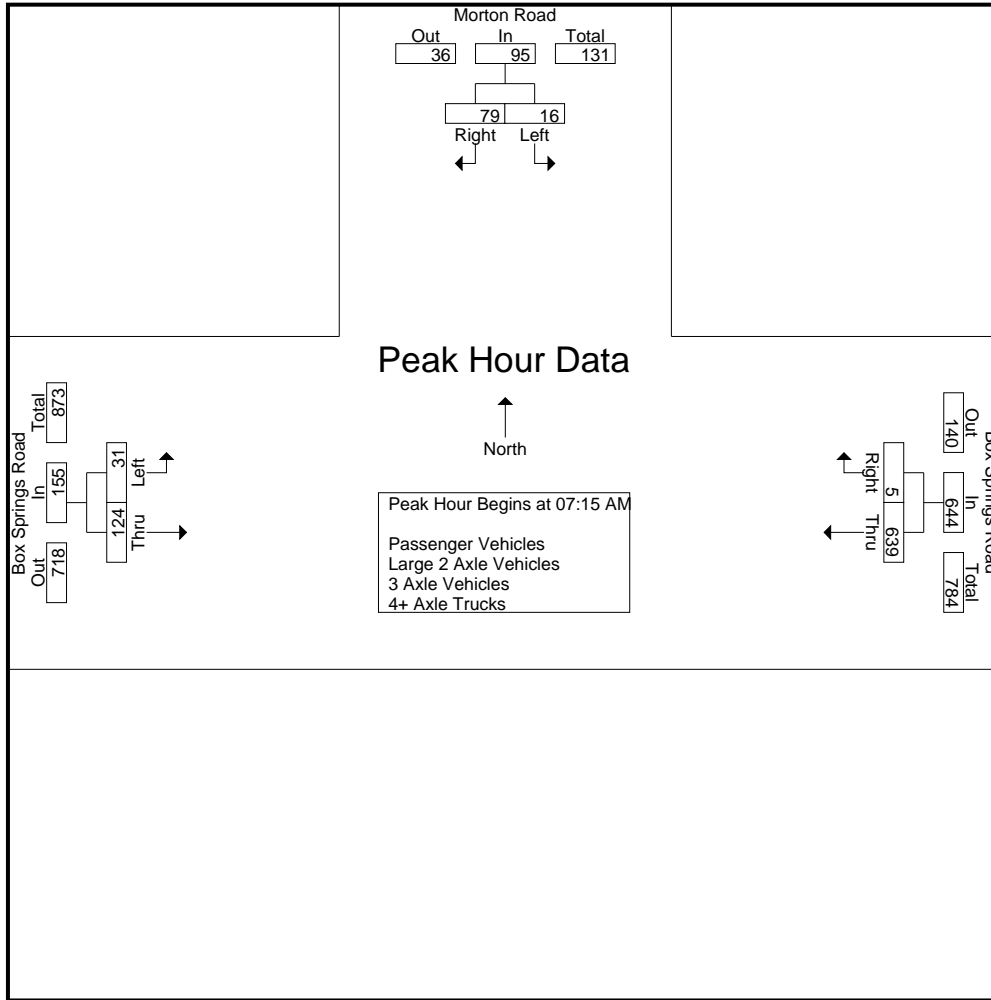
Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	1	21	22	159	1	160	4	21	25	207
07:30 AM	4	22	26	169	1	170	10	24	34	230
07:45 AM	5	17	22	184	1	185	7	33	40	247
08:00 AM	6	19	25	127	2	129	10	46	56	210
Total Volume	16	79	95	639	5	644	31	124	155	894
% App. Total	16.8	83.2		99.2	0.8		20	80		
PHF	.667	.898	.913	.868	.625	.870	.775	.674	.692	.905

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM			07:00 AM			07:30 AM		
+0 mins.	5	17	22	143	0	143	10	24	34
+15 mins.	6	19	25	159	1	160	7	33	40
+30 mins.	3	26	29	169	1	170	10	46	56
+45 mins.	3	25	28	184	1	185	2	39	41
Total Volume	17	87	104	655	3	658	29	142	171
% App. Total	16.3	83.7		99.5	0.5		17	83	
PHF	.708	.837	.897	.890	.750	.889	.725	.772	.763

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	2	24	26	139	0	139	2	20	22	187
07:15 AM	1	20	21	159	1	160	4	21	25	206
07:30 AM	4	22	26	168	1	169	9	24	33	228
07:45 AM	4	17	21	181	0	181	7	31	38	240
Total	11	83	94	647	2	649	22	96	118	861
08:00 AM	6	19	25	126	2	128	10	46	56	209
08:15 AM	3	26	29	109	2	111	2	37	39	179
08:30 AM	3	25	28	105	3	108	4	30	34	170
08:45 AM	4	13	17	89	3	92	3	26	29	138
Total	16	83	99	429	10	439	19	139	158	696
Grand Total	27	166	193	1076	12	1088	41	235	276	1557
Apprch %	14	86		98.9	1.1		14.9	85.1		
Total %	1.7	10.7	12.4	69.1	0.8	69.9	2.6	15.1	17.7	

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:15 AM	1	20	21	159	1	160	4	21	25	206
07:30 AM	4	22	26	168	1	169	9	24	33	228
07:45 AM	4	17	21	181	0	181	7	31	38	240
08:00 AM	6	19	25	126	2	128	10	46	56	209
Total Volume	15	78	93	634	4	638	30	122	152	883
% App. Total	16.1	83.9		99.4	0.6		19.7	80.3		
PHF	.625	.886	.894	.876	.500	.881	.750	.663	.679	.920

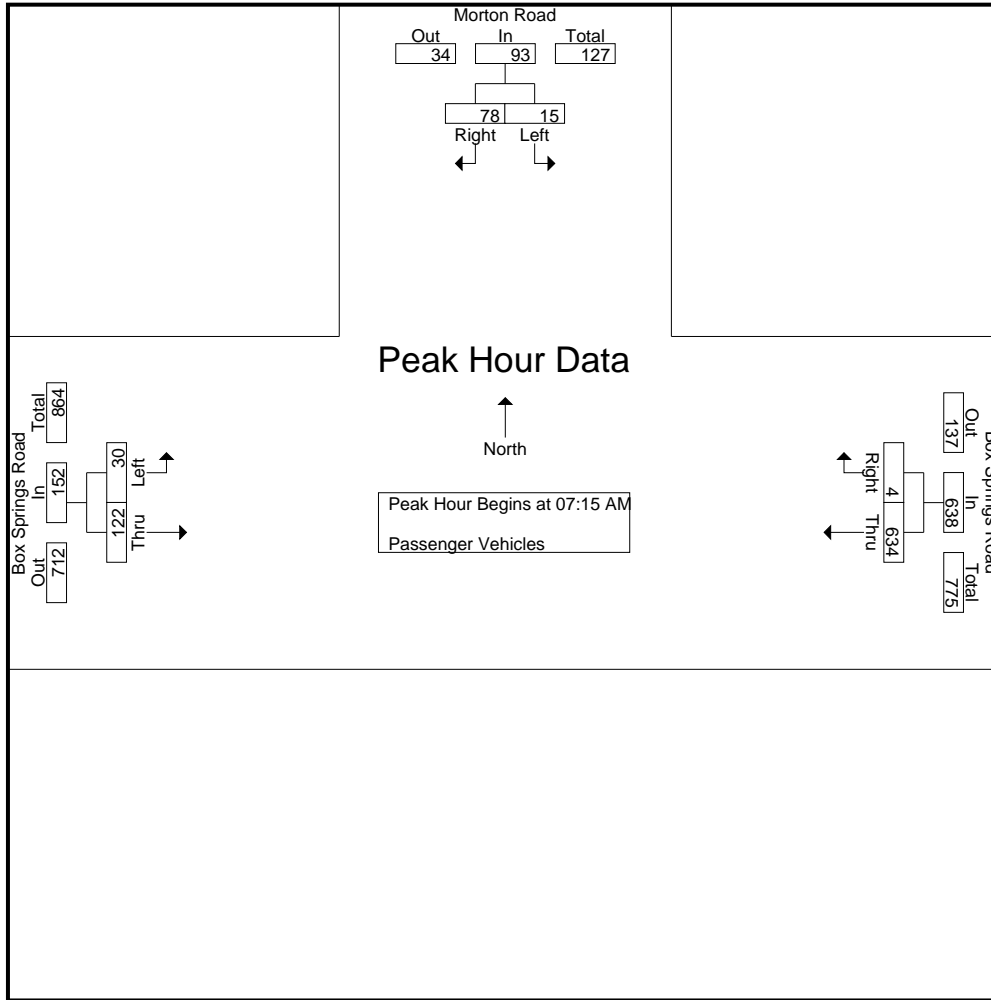
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	1	20	21	159	1	160	4	21	25
+15 mins.	4	22	26	168	1	169	9	24	33
+30 mins.	4	17	21	181	0	181	7	31	38
+45 mins.	6	19	25	126	2	128	10	46	56
Total Volume	15	78	93	634	4	638	30	122	152
% App. Total	16.1	83.9		99.4	0.6		19.7	80.3	
PHF	.625	.886	.894	.876	.500	.881	.750	.663	.679

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	0	0	4	0	4	0	0	0	4
07:15 AM	0	1	1	0	0	0	0	0	0	1
07:30 AM	0	0	0	1	0	1	1	0	1	2
07:45 AM	1	0	1	1	1	2	0	2	2	5
Total	1	1	2	6	1	7	1	2	3	12
08:00 AM	0	0	0	1	0	1	0	0	0	1
08:15 AM	0	0	0	2	0	2	0	2	2	4
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	2	0	2	0	1	1	3
Total	0	0	0	5	0	5	0	3	3	8
Grand Total	1	1	2	11	1	12	1	5	6	20
Apprch %	50	50		91.7	8.3		16.7	83.3		
Total %	5	5	10	55	5	60	5	25	30	

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:15 AM	0	1	1	0	0	0	0	0	0	1
07:30 AM	0	0	0	1	0	1	1	0	1	2
07:45 AM	1	0	1	1	1	2	0	2	2	5
08:00 AM	0	0	0	1	0	1	0	0	0	1
Total Volume	1	1	2	3	1	4	1	2	3	9
% App. Total	50	50		75	25		33.3	66.7		
PHF	.250	.250	.500	.750	.250	.500	.250	.250	.375	.450

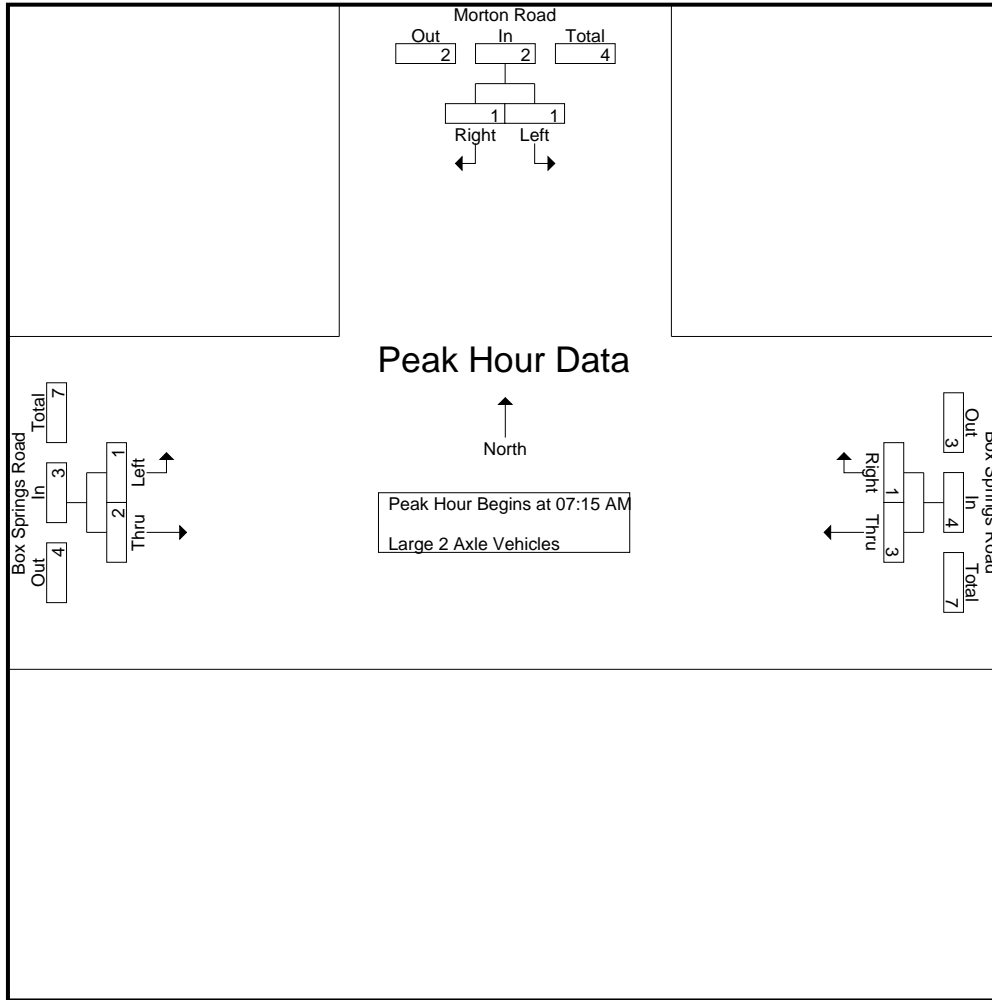
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	1	1	0	0	0	0	0	0
+15 mins.	0	0	0	1	0	1	1	0	1
+30 mins.	1	0	1	1	1	2	0	2	2
+45 mins.	0	0	0	1	0	1	0	0	0
Total Volume	1	1	2	3	1	4	1	2	3
% App. Total	50	50		75	25		33.3	66.7	
PHF	.250	.250	.500	.750	.250	.500	.250	.250	.375

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	0	1	0	0	0	1
Total	0	0	0	1	0	1	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	0	1	0	0	0	1
Apprch %	0	0		100	0		0	0		
Total %	0	0		100	0	100	0	0		

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	0	1	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250

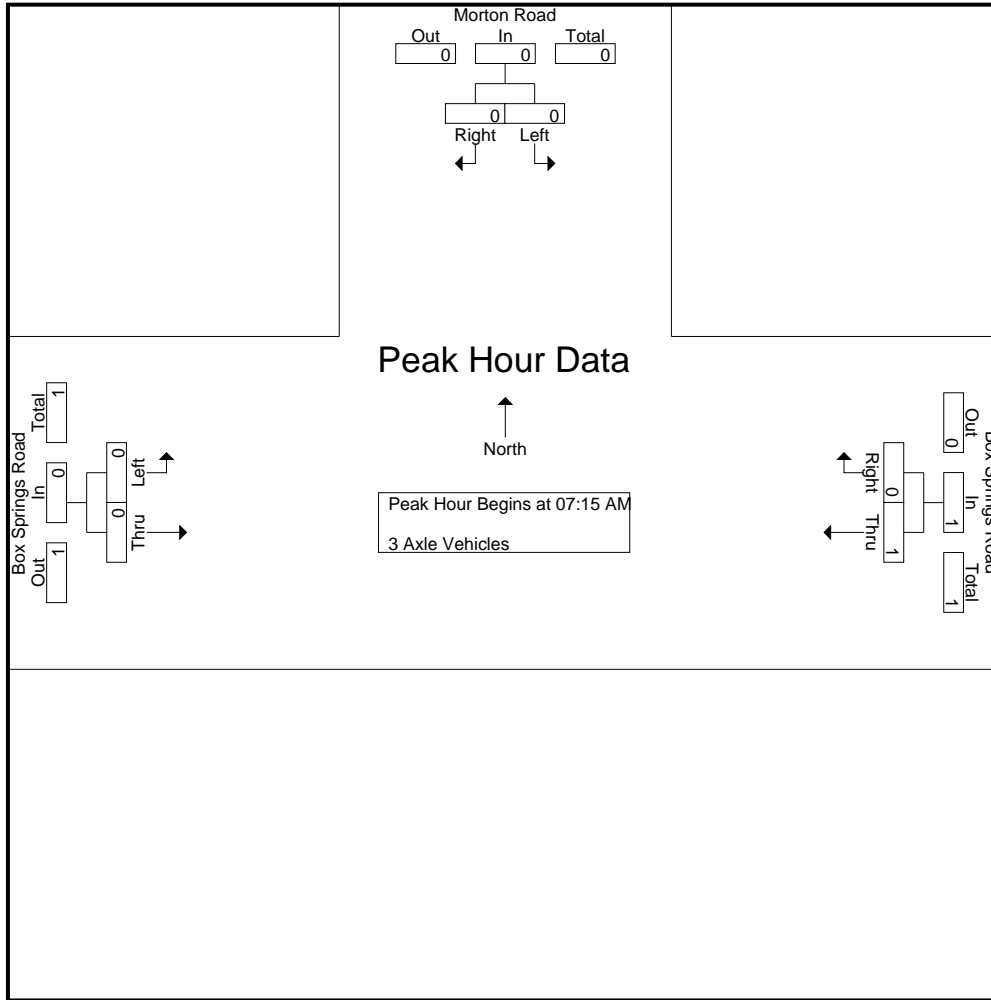
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	1	0	1	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0
% App. Total	0	0	0	100	0	0	0	0	0
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	0	1	0	0	0	1
Total	0	0	0	1	0	1	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	0	1	0	0	0	1
Apprch %	0	0		100	0		0	0		
Total %	0	0		100	0	100	0	0		

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	0	1	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250

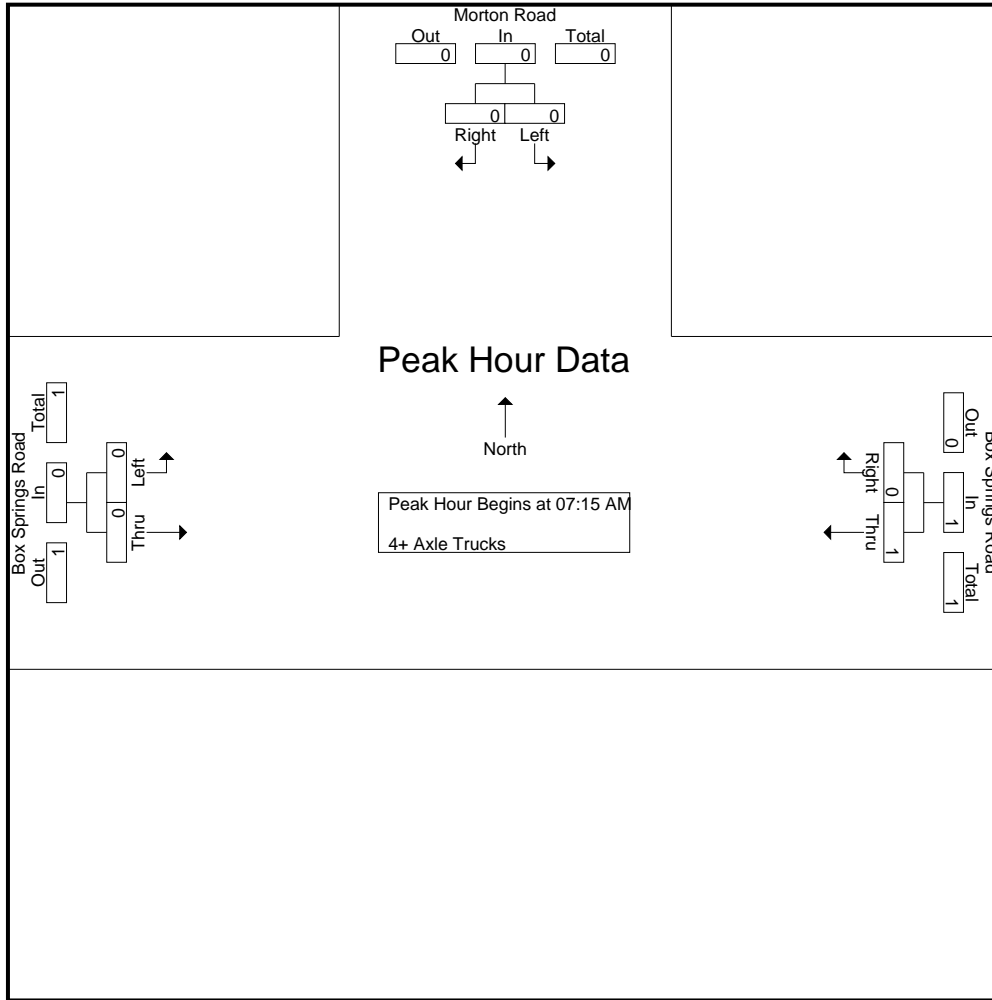
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs AM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	1	0	1	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0
% App. Total	0	0	0	100	0	0	0	0	0
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	7	14	21	120	5	125	16	89	105	251
04:15 PM	2	23	25	102	6	108	20	124	144	277
04:30 PM	4	15	19	99	8	107	25	122	147	273
04:45 PM	9	14	23	94	9	103	19	100	119	245
Total	22	66	88	415	28	443	80	435	515	1046
05:00 PM	8	8	16	98	5	103	21	151	172	291
05:15 PM	5	8	13	105	7	112	24	159	183	308
05:30 PM	11	13	24	109	9	118	18	156	174	316
05:45 PM	12	12	24	102	2	104	21	148	169	297
Total	36	41	77	414	23	437	84	614	698	1212
Grand Total	58	107	165	829	51	880	164	1049	1213	2258
Apprch %	35.2	64.8		94.2	5.8		13.5	86.5		
Total %	2.6	4.7	7.3	36.7	2.3	39	7.3	46.5	53.7	
Passenger Vehicles	57	107	164	818	51	869	163	1036	1199	2232
% Passenger Vehicles	98.3	100	99.4	98.7	100	98.8	99.4	98.8	98.8	98.8
Large 2 Axle Vehicles	1	0	1	11	0	11	1	13	14	26
% Large 2 Axle Vehicles	1.7	0	0.6	1.3	0	1.2	0.6	1.2	1.2	1.2
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0

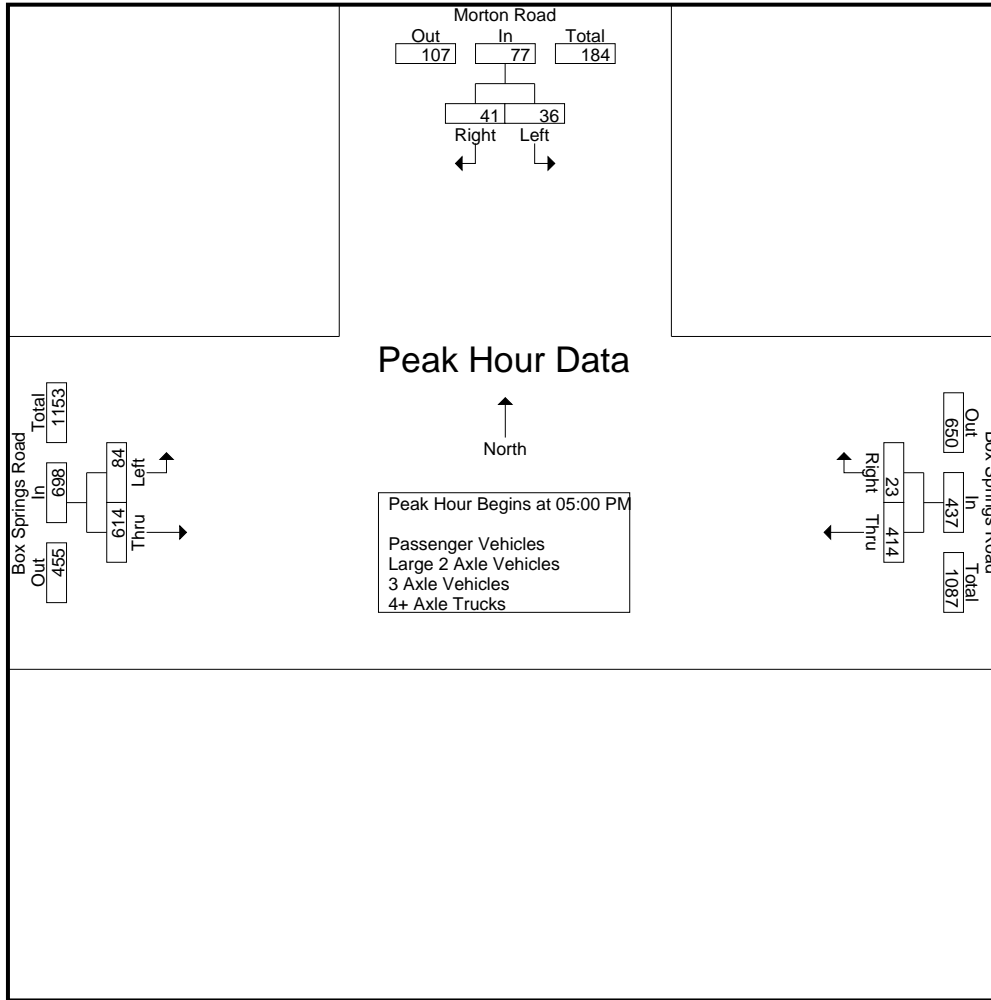
Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	8	8	16	98	5	103	21	151	172	291
05:15 PM	5	8	13	105	7	112	24	159	183	308
05:30 PM	11	13	24	109	9	118	18	156	174	316
05:45 PM	12	12	24	102	2	104	21	148	169	297
Total Volume	36	41	77	414	23	437	84	614	698	1212
% App. Total	46.8	53.2		94.7	5.3		12	88		
PHF	.750	.788	.802	.950	.639	.926	.875	.965	.954	.959

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			05:00 PM		
+0 mins.	7	14	21	120	5	125	21	151	172
+15 mins.	2	23	25	102	6	108	24	159	183
+30 mins.	4	15	19	99	8	107	18	156	174
+45 mins.	9	14	23	94	9	103	21	148	169
Total Volume	22	66	88	415	28	443	84	614	698
% App. Total	25	75		93.7	6.3		12	88	
PHF	.611	.717	.880	.865	.778	.886	.875	.965	.954

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	7	14	21	119	5	124	16	89	105	250
04:15 PM	2	23	25	100	6	106	20	123	143	274
04:30 PM	4	15	19	97	8	105	25	120	145	269
04:45 PM	9	14	23	93	9	102	19	98	117	242
Total	22	66	88	409	28	437	80	430	510	1035
05:00 PM	7	8	15	97	5	102	21	148	169	286
05:15 PM	5	8	13	104	7	111	24	158	182	306
05:30 PM	11	13	24	107	9	116	17	154	171	311
05:45 PM	12	12	24	101	2	103	21	146	167	294
Total	35	41	76	409	23	432	83	606	689	1197
Grand Total	57	107	164	818	51	869	163	1036	1199	2232
Apprch %	34.8	65.2		94.1	5.9		13.6	86.4		
Total %	2.6	4.8	7.3	36.6	2.3	38.9	7.3	46.4	53.7	

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
05:00 PM	7	8	15	97	5	102	21	148	169	286
05:15 PM	5	8	13	104	7	111	24	158	182	306
05:30 PM	11	13	24	107	9	116	17	154	171	311
05:45 PM	12	12	24	101	2	103	21	146	167	294
Total Volume	35	41	76	409	23	432	83	606	689	1197
% App. Total	46.1	53.9		94.7	5.3		12	88		
PHF	.729	.788	.792	.956	.639	.931	.865	.959	.946	.962

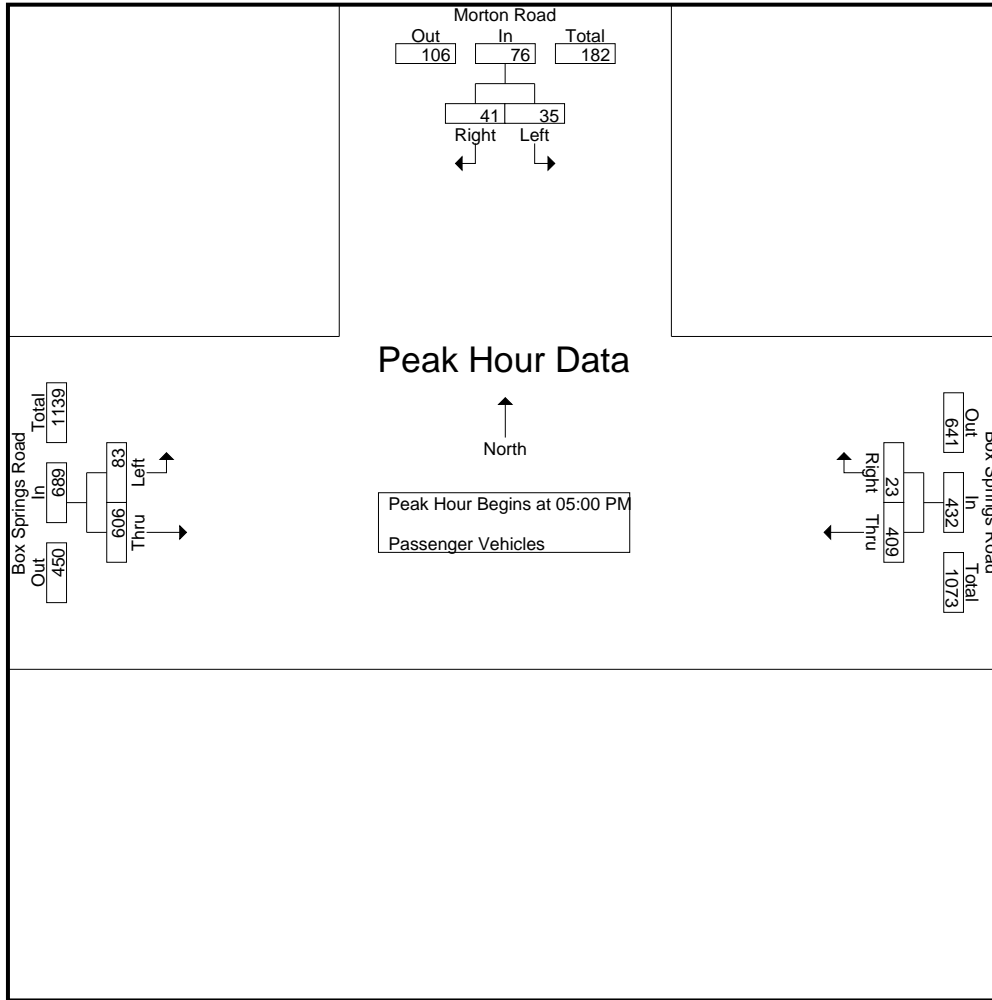
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	7	8	15	97	5	102	21	148	169
+15 mins.	5	8	13	104	7	111	24	158	182
+30 mins.	11	13	24	107	9	116	17	154	171
+45 mins.	12	12	24	101	2	103	21	146	167
Total Volume	35	41	76	409	23	432	83	606	689
% App. Total	46.1	53.9		94.7	5.3		12	88	
PHF	.729	.788	.792	.956	.639	.931	.865	.959	.946

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	0	0	0	1	0	1	0	0	0	1
04:15 PM	0	0	0	2	0	2	0	1	1	3
04:30 PM	0	0	0	2	0	2	0	2	2	4
04:45 PM	0	0	0	1	0	1	0	2	2	3
Total	0	0	0	6	0	6	0	5	5	11
05:00 PM	1	0	1	1	0	1	0	3	3	5
05:15 PM	0	0	0	1	0	1	0	1	1	2
05:30 PM	0	0	0	2	0	2	1	2	3	5
05:45 PM	0	0	0	1	0	1	0	2	2	3
Total	1	0	1	5	0	5	1	8	9	15
Grand Total	1	0	1	11	0	11	1	13	14	26
Apprch %	100	0		100	0		7.1	92.9		
Total %	3.8	0	3.8	42.3	0	42.3	3.8	50	53.8	

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
05:00 PM	1	0	1	1	0	1	0	3	3	5
05:15 PM	0	0	0	1	0	1	0	1	1	2
05:30 PM	0	0	0	2	0	2	1	2	3	5
05:45 PM	0	0	0	1	0	1	0	2	2	3
Total Volume	1	0	1	5	0	5	1	8	9	15
% App. Total	100	0		100	0		11.1	88.9		
PHF	.250	.000	.250	.625	.000	.625	.250	.667	.750	.750

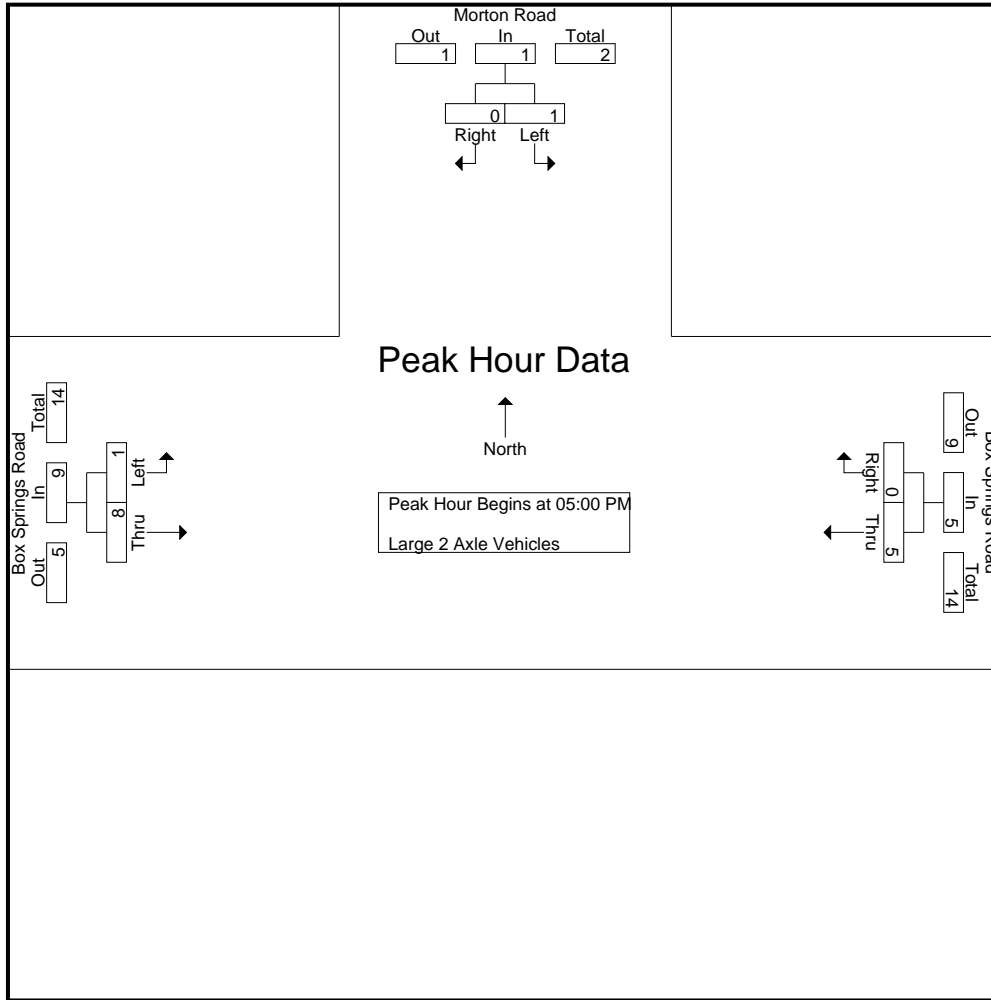
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	1	0	1	1	0	1	0	3	3
+15 mins.	0	0	0	1	0	1	0	1	1
+30 mins.	0	0	0	2	0	2	1	2	3
+45 mins.	0	0	0	1	0	1	0	2	2
Total Volume	1	0	1	5	0	5	1	8	9
% App. Total	100	0		100	0		11.1	88.9	
PHF	.250	.000	.250	.625	.000	.625	.250	.667	.750

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

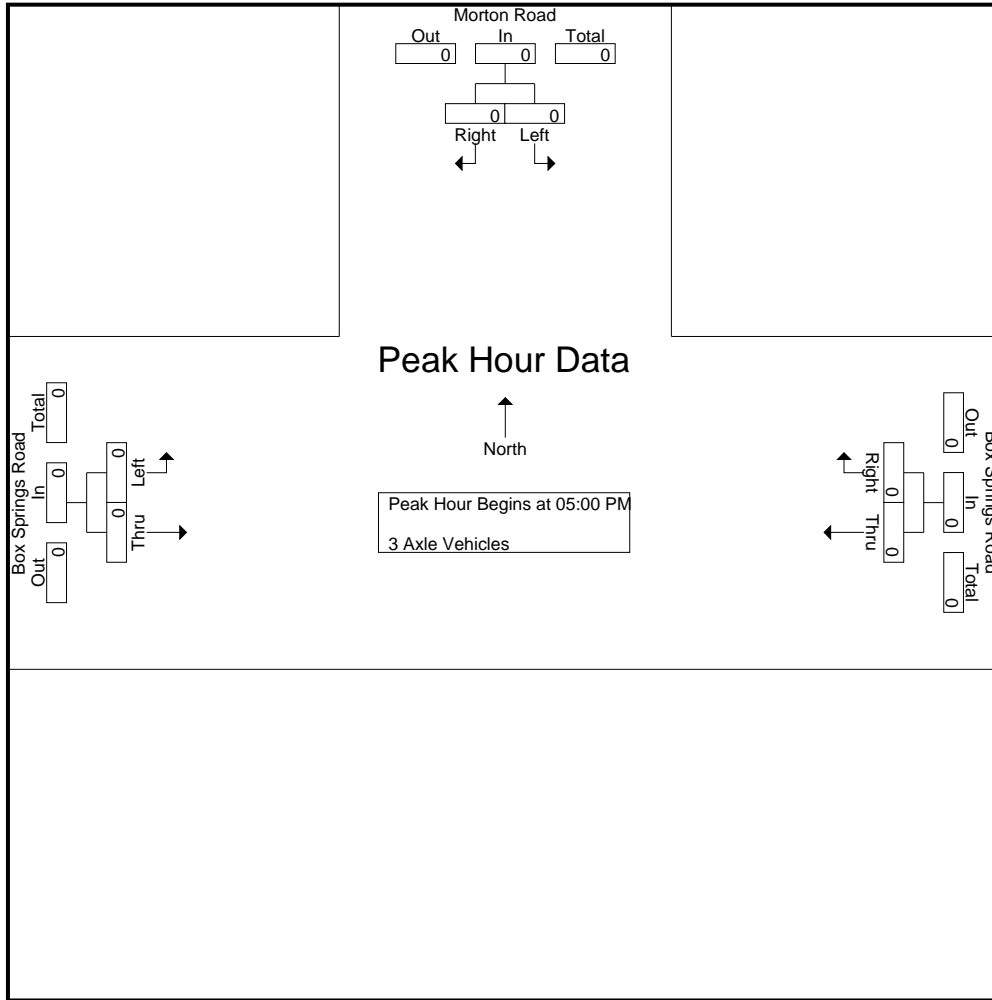
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

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Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
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 Corona, CA 92878
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City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

Start Time	Morton Road Southbound			Box Springs Road Westbound			Box Springs Road Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

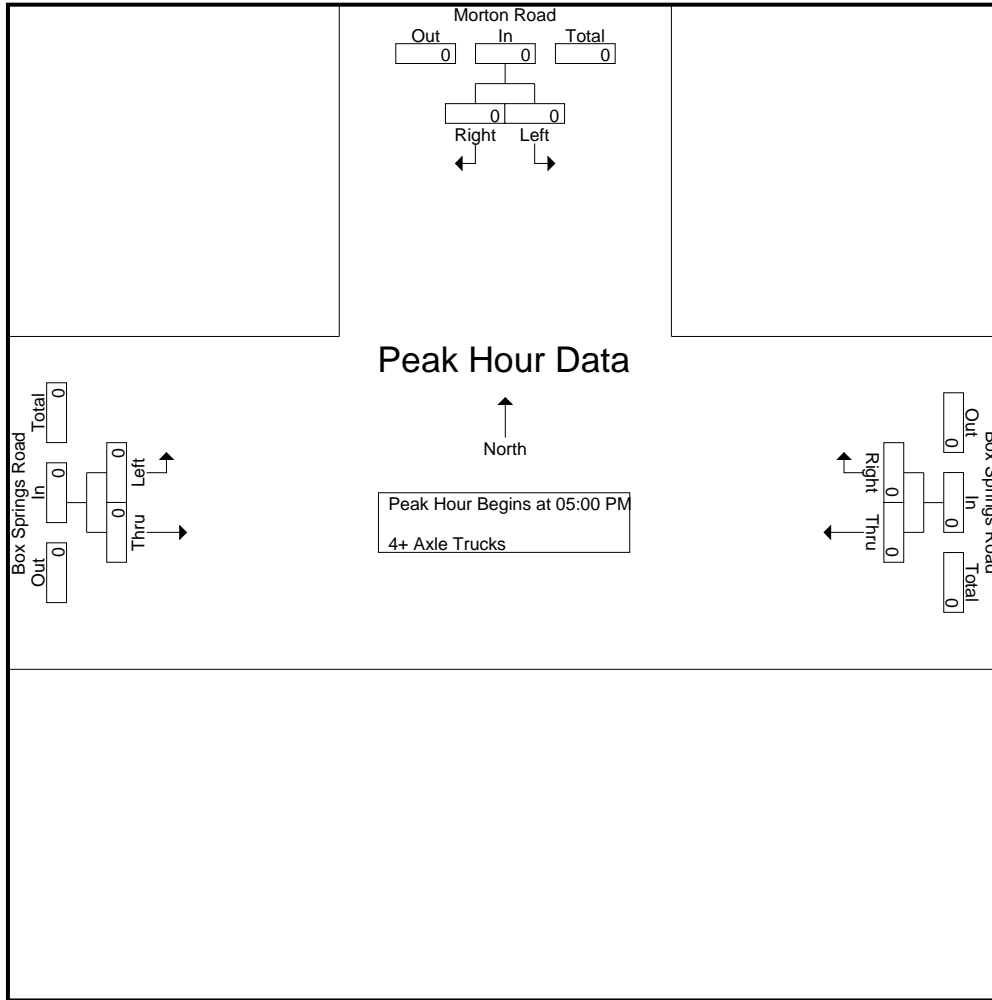
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951)268-6268

City of Moreno Valley
 N/S: Morton Road
 E/W: Box Springs Road
 Weather: Clear

File Name : 05_MRV_Morton_Box Springs PM
 Site Code : 99921033
 Start Date : 1/26/2021
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

City of Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd/Ironwood Avenue
 Weather: Clear

File Name : 01_MRV_Day_Ironwood
 Site Code : 05119512
 Start Date : 8/20/2019
 Page No : 1

Groups Printed- Total Volume

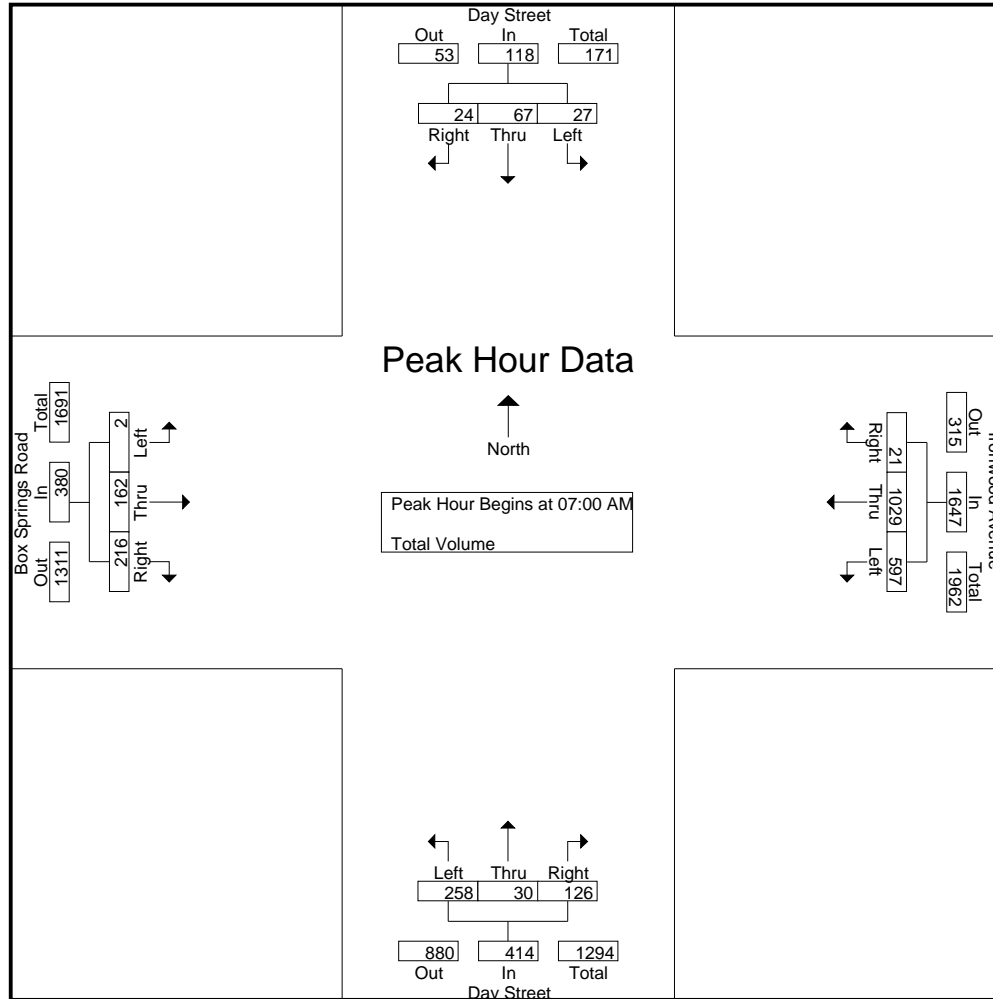
Start Time	Day Street Southbound					Ironwood Avenue Westbound					Day Street Northbound					Box Springs Road Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
07:00 AM	5	9	8	4	22	145	332	4	0	481	73	5	27	24	105	0	28	54	22	82	50	690	74
07:15 AM	8	18	2	1	28	169	235	6	1	410	69	6	36	34	111	0	52	65	36	117	72	666	73
07:30 AM	7	21	6	4	34	136	247	6	0	389	50	10	32	19	92	1	33	49	26	83	49	598	64
07:45 AM	7	19	8	1	34	147	215	5	0	367	66	9	31	16	106	1	49	48	28	98	45	605	65
Total	27	67	24	10	118	597	1029	21	1	1647	258	30	126	93	414	2	162	216	112	380	216	2559	277
08:00 AM	3	17	3	1	23	130	283	2	0	415	76	8	35	22	119	1	45	64	27	110	50	667	71
08:15 AM	4	16	2	0	22	122	288	5	0	415	83	9	40	18	132	2	38	51	24	91	42	660	70
08:30 AM	5	14	2	1	21	97	255	4	1	356	73	16	33	25	122	1	36	68	36	105	63	604	66
08:45 AM	3	6	3	2	12	86	255	4	0	345	75	6	45	19	126	0	21	31	21	52	42	535	57
Total	15	53	10	4	78	435	1081	15	1	1531	307	39	153	84	499	4	140	214	108	358	197	2466	266
Grand Total	42	120	34	14	196	1032	2110	36	2	3178	565	69	279	177	913	6	302	430	220	738	413	5025	543
Apprch %	21.4	61.2	17.3			32.5	66.4	1.1			61.9	7.6	30.6			0.8	40.9	58.3					
Total %	0.8	2.4	0.7		3.9	20.5	42	0.7		63.2	11.2	1.4	5.6		18.2	0.1	6	8.6		14.7	7.6	92.4	

Start Time	Day Street Southbound				Ironwood Avenue Westbound				Day Street Northbound				Box Springs Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	5	9	8	22	145	332	4	481	73	5	27	105	0	28	54	82	690
07:15 AM	8	18	2	28	169	235	6	410	69	6	36	111	0	52	65	117	666
07:30 AM	7	21	6	34	136	247	6	389	50	10	32	92	1	33	49	83	598
07:45 AM	7	19	8	34	147	215	5	367	66	9	31	106	1	49	48	98	605
Total Volume	27	67	24	118	597	1029	21	1647	258	30	126	414	2	162	216	380	2559
% App. Total	22.9	56.8	20.3		36.2	62.5	1.3		62.3	7.2	30.4		0.5	42.6	56.8		
PHF	.844	.798	.750	.868	.883	.775	.875	.856	.884	.750	.875	.932	.500	.779	.831	.812	.92

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

City of Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd/Ironwood Avenue
 Weather: Clear

File Name : 01_MRV_Day_Ironwood
 Site Code : 05119512
 Start Date : 8/20/2019
 Page No : 2



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

City of Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd/Ironwood Avenue
 Weather: Clear

File Name : 01_MR_V_Day_Ironwood
 Site Code : 05119512
 Start Date : 8/20/2019
 Page No : 3

Start Time	Day Street Southbound				Ironwood Avenue Westbound				Day Street Northbound				Box Springs Road Eastbound				Int. Tot
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:00 AM				08:00 AM				07:15 AM				
+0 mins.	8	18	2	28	145	332	4	481	76	8	35	119	0	52	65	117	
+15 mins.	7	21	6	34	169	235	6	410	83	9	40	132	1	33	49	83	
+30 mins.	7	19	8	34	136	247	6	389	73	16	33	122	1	49	48	98	
+45 mins.	3	17	3	23	147	215	5	367	75	6	45	126	1	45	64	110	
Total Volume	25	75	19	119	597	1029	21	1647	307	39	153	499	3	179	226	408	
% App. Total	21	63	16		36.2	62.5	1.3		61.5	7.8	30.7		0.7	43.9	55.4		
PHF	.781	.893	.594	.875	.883	.775	.875	.856	.925	.609	.850	.945	.750	.861	.869	.872	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

City of Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd/Ironwood Avenue
 Weather: Clear

File Name : 01_MRV_Day_Ironwood
 Site Code : 05119512
 Start Date : 8/20/2019
 Page No : 1

Groups Printed- Total Volume

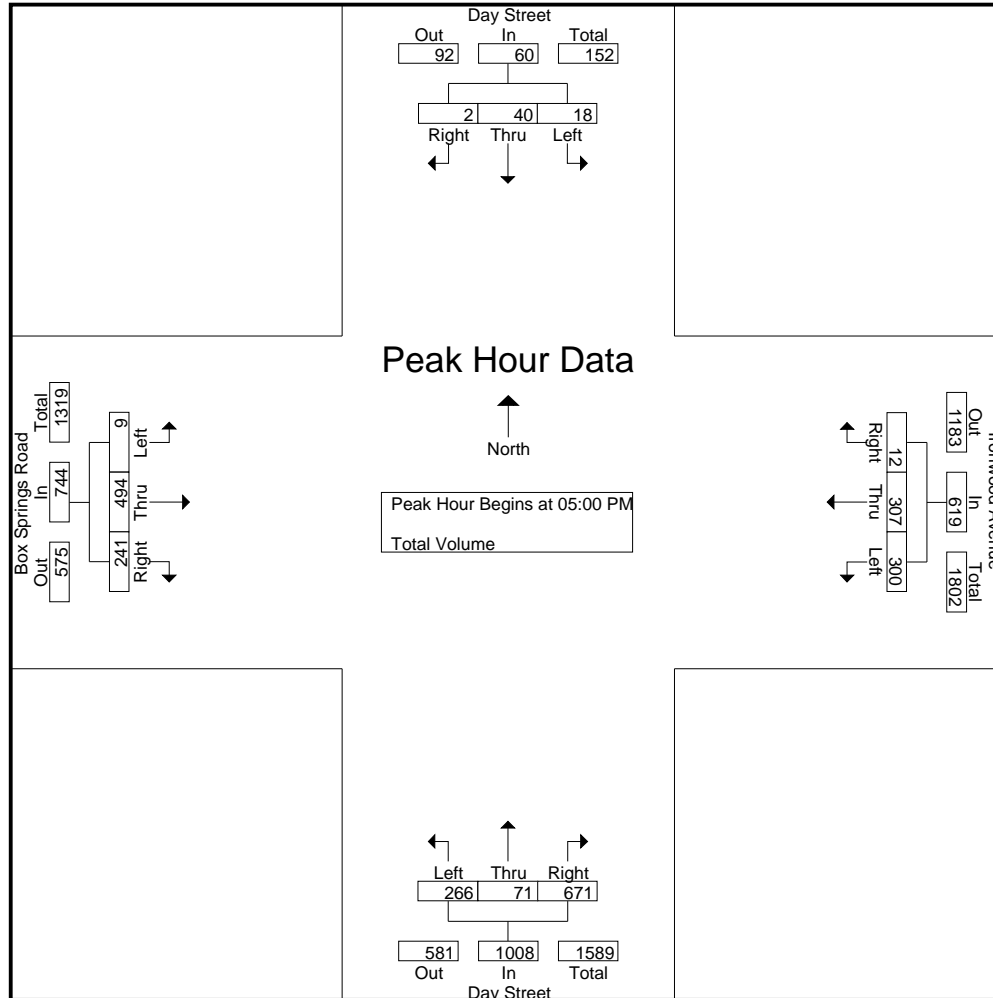
Start Time	Day Street Southbound					Ironwood Avenue Westbound					Day Street Northbound					Box Springs Road Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:00 PM	4	3	2	2	9	74	90	8	1	172	75	9	106	49	190	3	102	49	19	154	71	525	59
04:15 PM	4	7	4	1	15	63	87	4	0	154	66	14	115	39	195	1	107	60	37	168	77	532	60
04:30 PM	2	7	1	0	10	52	66	1	0	119	67	15	137	50	219	5	106	49	25	160	75	508	58
04:45 PM	5	11	1	0	17	90	72	6	1	168	59	13	142	60	214	4	118	37	19	159	80	558	63
Total	15	28	8	3	51	279	315	19	2	613	267	51	500	198	818	13	433	195	100	641	303	2123	242
05:00 PM	4	8	0	0	12	70	74	3	0	147	54	18	168	49	240	2	122	53	27	177	76	576	65
05:15 PM	6	8	0	0	14	69	81	5	2	155	64	27	192	61	283	0	118	56	45	174	108	626	73
05:30 PM	2	9	1	0	12	66	68	2	0	136	71	11	163	61	245	4	123	71	45	198	106	591	69
05:45 PM	6	15	1	1	22	95	84	2	0	181	77	15	148	65	240	3	131	61	33	195	99	638	73
Total	18	40	2	1	60	300	307	12	2	619	266	71	671	236	1008	9	494	241	150	744	389	2431	282
Grand Total	33	68	10	4	111	579	622	31	4	1232	533	122	1171	434	1826	22	927	436	250	1385	692	4554	524
Apprch %	29.7	61.3	9			47	50.5	2.5			29.2	6.7	64.1			1.6	66.9	31.5					
Total %	0.7	1.5	0.2		2.4	12.7	13.7	0.7		27.1	11.7	2.7	25.7		40.1	0.5	20.4	9.6		30.4	13.2	86.8	

Start Time	Day Street Southbound				Ironwood Avenue Westbound				Day Street Northbound				Box Springs Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	4	8	0	12	70	74	3	147	54	18	168	240	2	122	53	177	57
05:15 PM	6	8	0	14	69	81	5	155	64	27	192	283	0	118	56	174	62
05:30 PM	2	9	1	12	66	68	2	136	71	11	163	245	4	123	71	198	59
05:45 PM	6	15	1	22	95	84	2	181	77	15	148	240	3	131	61	195	63
Total Volume	18	40	2	60	300	307	12	619	266	71	671	1008	9	494	241	744	243
% App. Total	30	66.7	3.3		48.5	49.6	1.9		26.4	7	66.6		1.2	66.4	32.4		
PHF	.750	.667	.500	.682	.789	.914	.600	.855	.864	.657	.874	.890	.563	.943	.849	.939	.95

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

City of Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd/Ironwood Avenue
 Weather: Clear

File Name : 01_MRV_Day_Ironwood
 Site Code : 05119512
 Start Date : 8/20/2019
 Page No : 2



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

City of Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd/Ironwood Avenue
 Weather: Clear

File Name : 01_MRV_Day_Ironwood
 Site Code : 05119512
 Start Date : 8/20/2019
 Page No : 3

Start Time	Day Street Southbound				Ironwood Avenue Westbound				Day Street Northbound				Box Springs Road Eastbound				Int. Tot
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				05:00 PM				05:00 PM				
+0 mins.	4	8	0	12	70	74	3	147	54	18	168	240	2	122	53	177	
+15 mins.	6	8	0	14	69	81	5	155	64	27	192	283	0	118	56	174	
+30 mins.	2	9	1	12	66	68	2	136	71	11	163	245	4	123	71	198	
+45 mins.	6	15	1	22	95	84	2	181	77	15	148	240	3	131	61	195	
Total Volume	18	40	2	60	300	307	12	619	266	71	671	1008	9	494	241	744	
% App. Total	30	66.7	3.3		48.5	49.6	1.9		26.4	7	66.6		1.2	66.4	32.4		
PHF	.750	.667	.500	.682	.789	.914	.600	.855	.864	.657	.874	.890	.563	.943	.849	.939	

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

Location: Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd/Ironwood Ave



Date: 8/20/2019
 Day: Tuesday

PEDESTRIANS

	North Leg Day Street	East Leg Ironwood Avenue	South Leg Day Street	West Leg Box Springs Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	2	0	0	0	2
7:15 AM	0	0	0	0	0
7:30 AM	2	0	0	0	2
7:45 AM	3	0	0	0	3
8:00 AM	1	0	0	0	1
8:15 AM	1	0	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	9	0	0	0	9

	North Leg Day Street	East Leg Ironwood Avenue	South Leg Day Street	West Leg Box Springs Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	2	0	0	0	2
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	3	0	0	0	3

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Location: Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd/Ironwood Ave



Date: 8/20/2019
 Day: Tuesday

BICYCLES

	Southbound Day Street			Westbound Ironwood Avenue			Northbound Day Street			Eastbound Box Springs Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	0	0	0	0	0	0	1	0	2

	Southbound Day Street			Westbound Ironwood Avenue			Northbound Day Street			Eastbound Box Springs Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
TOTAL VOLUMES:	0	0	0	0	2	0	0	0	0	0	1	0	3

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268
 counts@countsunlimited.com

City of Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd / Ironwood Ave
 Weather: Clear

File Name : MRV_Day_Ironwood_AM
 Site Code : 99921046
 Start Date : 2/2/2021
 Page No : 1

Groups Printed- Total Volume

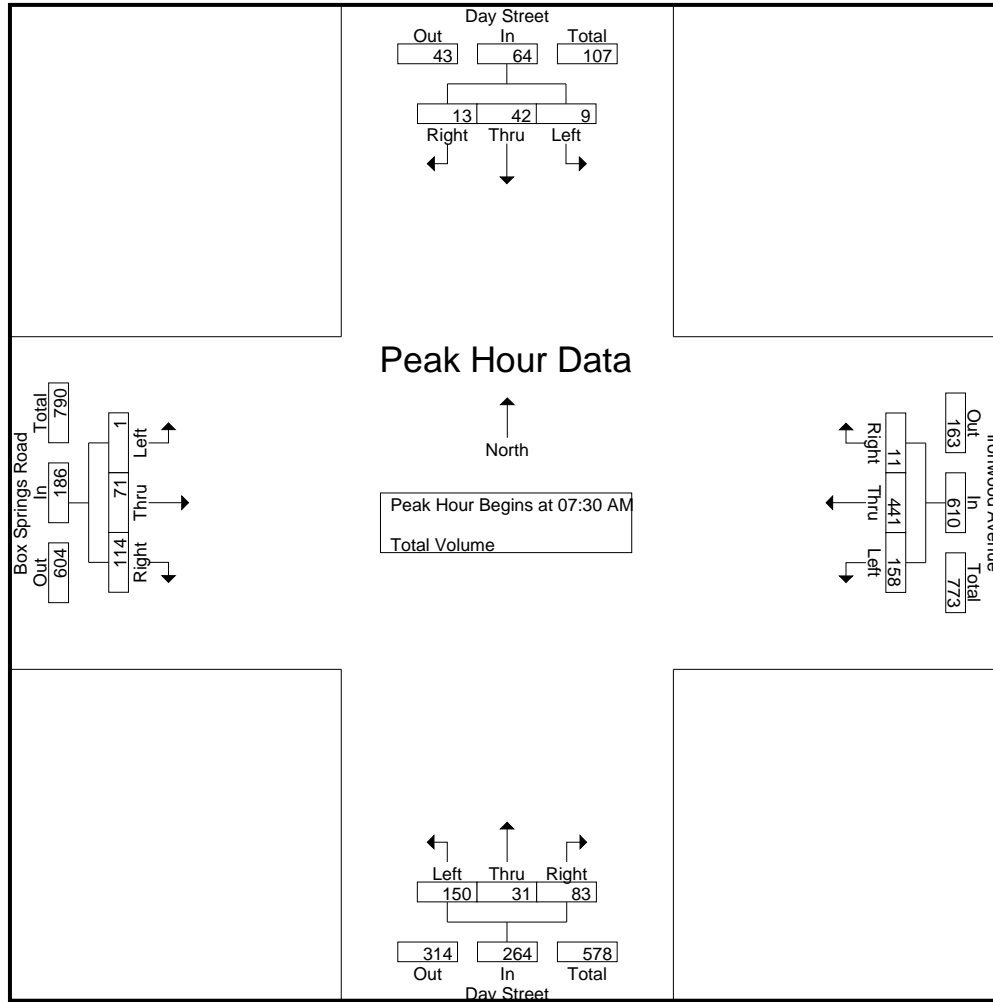
Start Time	Day Street Southbound				Ironwood Avenue Westbound				Day Street Northbound				Box Springs Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	7	3	10	32	98	0	130	16	3	16	35	0	14	26	40	215
07:15 AM	1	8	1	10	30	110	2	142	28	3	15	46	2	15	24	41	239
07:30 AM	5	9	5	19	33	136	4	173	37	8	18	63	0	13	32	45	300
07:45 AM	4	13	3	20	43	115	4	162	39	11	29	79	0	17	37	54	315
Total	10	37	12	59	138	459	10	607	120	25	78	223	2	59	119	180	1069
08:00 AM	0	8	4	12	44	105	1	150	40	8	20	68	1	16	20	37	267
08:15 AM	0	12	1	13	38	85	2	125	34	4	16	54	0	25	25	50	242
08:30 AM	1	9	3	13	32	75	1	108	22	8	25	55	0	26	37	63	239
08:45 AM	0	4	1	5	48	61	0	109	34	4	34	72	0	19	42	61	247
Total	1	33	9	43	162	326	4	492	130	24	95	249	1	86	124	211	995
Grand Total	11	70	21	102	300	785	14	1099	250	49	173	472	3	145	243	391	2064
Apprch %	10.8	68.6	20.6		27.3	71.4	1.3		53	10.4	36.7		0.8	37.1	62.1		
Total %	0.5	3.4	1	4.9	14.5	38	0.7	53.2	12.1	2.4	8.4	22.9	0.1	7	11.8	18.9	

Start Time	Day Street Southbound				Ironwood Avenue Westbound				Day Street Northbound				Box Springs Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	9	5	19	33	136	4	173	37	8	18	63	0	13	32	45	300
07:45 AM	4	13	3	20	43	115	4	162	39	11	29	79	0	17	37	54	315
08:00 AM	0	8	4	12	44	105	1	150	40	8	20	68	1	16	20	37	267
08:15 AM	0	12	1	13	38	85	2	125	34	4	16	54	0	25	25	50	242
Total Volume	9	42	13	64	158	441	11	610	150	31	83	264	1	71	114	186	1124
% App. Total	14.1	65.6	20.3		25.9	72.3	1.8		56.8	11.7	31.4		0.5	38.2	61.3		
PHF	.450	.808	.650	.800	.898	.811	.688	.882	.938	.705	.716	.835	.250	.710	.770	.861	.892

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268
 counts@countsunlimited.com

File Name : MRV_Day_Ironwood_AM
 Site Code : 99921046
 Start Date : 2/2/2021
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:30 AM				08:00 AM			
+0 mins.	5	9	5	19	30	110	2	142	37	8	18	63	1	16	20	37
+15 mins.	4	13	3	20	33	136	4	173	39	11	29	79	0	25	25	50
+30 mins.	0	8	4	12	43	115	4	162	40	8	20	68	0	26	37	63
+45 mins.	0	12	1	13	44	105	1	150	34	4	16	54	0	19	42	61
Total Volume	9	42	13	64	150	466	11	627	150	31	83	264	1	86	124	211
% App. Total	14.1	65.6	20.3		23.9	74.3	1.8		56.8	11.7	31.4		0.5	40.8	58.8	
PHF	.450	.808	.650	.800	.852	.857	.688	.906	.938	.705	.716	.835	.250	.827	.738	.837

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268
 counts@countsunlimited.com

City of Moreno Valley
 N/S: Day Street
 E/W: Box Springs Rd / Ironwood Ave
 Weather: Clear

File Name : MRV_Day_Ironwood_PM
 Site Code : 99921046
 Start Date : 2/2/2021
 Page No : 1

Groups Printed- Total Volume

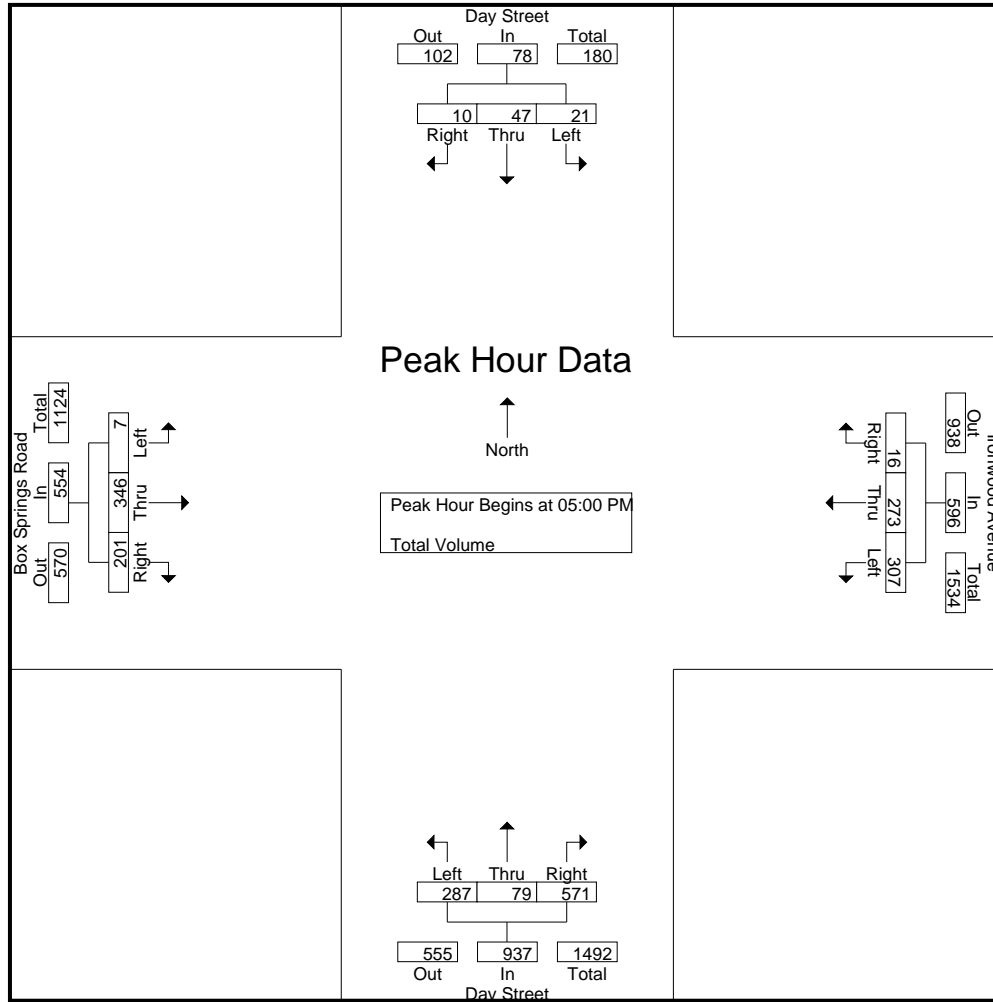
Start Time	Day Street Southbound				Ironwood Avenue Westbound				Day Street Northbound				Box Springs Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	4	6	1	11	67	68	3	138	65	11	107	183	5	90	61	156	488
04:15 PM	2	8	2	12	65	69	0	134	68	14	107	189	3	104	56	163	498
04:30 PM	3	9	2	14	67	83	4	154	73	9	105	187	1	87	62	150	505
04:45 PM	3	5	0	8	78	85	4	167	70	15	115	200	0	90	48	138	513
Total	12	28	5	45	277	305	11	593	276	49	434	759	9	371	227	607	2004
05:00 PM	2	10	4	16	75	83	2	160	81	10	121	212	3	93	54	150	538
05:15 PM	5	11	1	17	59	62	3	124	58	26	122	206	1	96	52	149	496
05:30 PM	5	15	2	22	80	70	7	157	68	18	164	250	1	86	49	136	565
05:45 PM	9	11	3	23	93	58	4	155	80	25	164	269	2	71	46	119	566
Total	21	47	10	78	307	273	16	596	287	79	571	937	7	346	201	554	2165
Grand Total	33	75	15	123	584	578	27	1189	563	128	1005	1696	16	717	428	1161	4169
Apprch %	26.8	61	12.2		49.1	48.6	2.3		33.2	7.5	59.3		1.4	61.8	36.9		
Total %	0.8	1.8	0.4	3	14	13.9	0.6	28.5	13.5	3.1	24.1	40.7	0.4	17.2	10.3	27.8	

Start Time	Day Street Southbound				Ironwood Avenue Westbound				Day Street Northbound				Box Springs Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	2	10	4	16	75	83	2	160	81	10	121	212	3	93	54	150	538
05:15 PM	5	11	1	17	59	62	3	124	58	26	122	206	1	96	52	149	496
05:30 PM	5	15	2	22	80	70	7	157	68	18	164	250	1	86	49	136	565
05:45 PM	9	11	3	23	93	58	4	155	80	25	164	269	2	71	46	119	566
Total Volume	21	47	10	78	307	273	16	596	287	79	571	937	7	346	201	554	2165
% App. Total	26.9	60.3	12.8		51.5	45.8	2.7		30.6	8.4	60.9		1.3	62.5	36.3		
PHF	.583	.783	.625	.848	.825	.822	.571	.931	.886	.760	.870	.871	.583	.901	.931	.923	.956

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Counts Unlimited, Inc.
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268
 counts@countsunlimited.com

File Name : MRV_Day_Ironwood_PM
 Site Code : 99921046
 Start Date : 2/2/2021
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				04:15 PM				05:00 PM				04:00 PM			
+0 mins.	2	10	4	16	65	69	0	134	81	10	121	212	5	90	61	156
+15 mins.	5	11	1	17	67	83	4	154	58	26	122	206	3	104	56	163
+30 mins.	5	15	2	22	78	85	4	167	68	18	164	250	1	87	62	150
+45 mins.	9	11	3	23	75	83	2	160	80	25	164	269	0	90	48	138
Total Volume	21	47	10	78	285	320	10	615	287	79	571	937	9	371	227	607
% App. Total	26.9	60.3	12.8		46.3	52	1.6		30.6	8.4	60.9		1.5	61.1	37.4	
PHF	.583	.783	.625	.848	.913	.941	.625	.921	.886	.760	.870	.871	.450	.892	.915	.931

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

APPENDIX C: VOLUME DEVELOPMENT WORKSHEETS

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

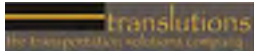


Table C-1 - Existing Peak Hour Volumes
(Intersections With Classification Counts)

	AM Peak Hour					PM Peak Hour						
	Pass. Veh.	Trucks			Total PCE Volume	Pass. Veh.	Trucks			Total PCE Volume		
		2 Axle	3 Axle	4 Axle			PCE	2 Axle	3 Axle		4 Axle	PCE
1 . Sycamore Canyon Boulevard/Fair Isle Dr												
NBL	75	1	0	0	2	77	111	0	0	0	0	111
NBT	495	6	3	0	15	510	278	6	1	0	11	289
NBR	197	23	1	27	118	315	444	7	3	29	104	548
SBL	59	0	0	0	0	59	379	1	0	0	2	381
SBT	92	3	0	0	5	97	386	8	1	0	14	400
SBR	3	0	0	0	0	3	31	0	0	0	0	31
EBL	23	3	0	0	5	28	7	4	0	0	6	13
EBT	63	3	0	0	5	68	93	4	0	0	6	99
EBR	66	0	0	0	0	66	98	0	0	0	0	98
WBL	80	5	0	0	8	88	97	4	0	0	6	103
WBT	34	0	0	0	0	34	90	0	0	0	0	90
WBR	189	1	0	0	2	191	107	0	0	0	0	107
North Leg												
Approach	154	3	0	0	5	159	796	9	1	0	16	812
Departure	707	10	3	0	22	729	392	10	1	0	17	409
Total	861	13	3	0	27	888	1,188	19	2	0	33	1,221
South Leg												
Approach	767	30	4	27	135	902	833	13	4	29	115	948
Departure	238	8	0	0	13	251	581	12	1	0	20	601
Total	1,005	38	4	27	148	1,153	1,414	25	5	29	135	1,549
East Leg												
Approach	303	6	0	0	10	313	294	4	0	0	6	300
Departure	319	26	1	27	123	442	916	12	3	29	112	1,028
Total	622	32	1	27	133	755	1,210	16	3	29	118	1,328
West Leg												
Approach	152	6	0	0	10	162	198	8	0	0	12	210
Departure	112	1	0	0	2	114	232	0	0	0	0	232
Total	264	7	0	0	12	276	430	8	0	0	12	442
Total Approaches												
Approach	1,376	45	4	27	160	1,536	2,121	34	5	29	149	2,270
Departure	1,376	45	4	27	160	1,536	2,121	34	5	29	149	2,270
Total	2,752	90	8	54	320	3,072	4,242	68	10	58	298	4,540

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-1 - Existing Peak Hour Volumes
(Intersections With Classification Counts)

	AM Peak Hour					PM Peak Hour						
	Pass. Veh.	Trucks			Total PCE Volume	Pass. Veh.	Trucks			Total PCE Volume		
		2 Axle	3 Axle	4 Axle			PCE	2 Axle	3 Axle		4 Axle	PCE
2 . I-215 Northbound Ramps/Fair Isle Dr-Box Springs Road												
NBL	58	1	0	0	2	60	96	0	0	0	0	96
NBT	4	0	0	0	0	4	2	0	0	0	0	2
NBR	3	0	0	0	0	3	8	0	0	0	0	8
SBL	0	0	0	0	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0	0	0	0	0
SBR	0	0	0	0	0	0	0	0	0	0	0	0
EBL	159	19	3	30	125	284	258	4	3	31	105	363
EBT	145	3	0	0	5	150	657	9	0	0	14	671
EBR	0	0	0	0	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	0	0	0	0	0	0	0
WBT	244	2	14	0	31	275	190	4	2	0	10	200
WBR	453	3	1	0	7	460	249	1	0	0	2	251
North Leg												
Approach	0	0	0	0	0	0	0	0	0	0	0	0
Departure	616	22	4	30	132	748	509	5	3	31	107	616
Total	616	22	4	30	132	748	509	5	3	31	107	616
South Leg												
Approach	65	1	0	0	2	67	106	0	0	0	0	106
Departure	0	0	0	0	0	0	0	0	0	0	0	0
Total	65	1	0	0	2	67	106	0	0	0	0	106
East Leg												
Approach	697	5	15	0	38	735	439	5	2	0	12	451
Departure	148	3	0	0	5	153	665	9	0	0	14	679
Total	845	8	15	0	43	888	1,104	14	2	0	26	1,130
West Leg												
Approach	304	22	3	30	130	434	915	13	3	31	119	1,034
Departure	302	3	14	0	33	335	286	4	2	0	10	296
Total	606	25	17	30	163	769	1,201	17	5	31	129	1,330
Total Approaches												
Approach	1,066	28	18	30	170	1,236	1,460	18	5	31	131	1,591
Departure	1,066	28	18	30	170	1,236	1,460	18	5	31	131	1,591
Total	2,132	56	36	60	340	2,472	2,920	36	10	62	262	3,182

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

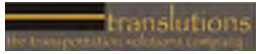


Table C-1 - Existing Peak Hour Volumes
(Intersections With Classification Counts)

AM Peak Hour						PM Peak Hour					
Pass. Veh.	Trucks			PCE	Total Volume	Pass. Veh.	Trucks			PCE	Total Volume
	2 Axle	3 Axle	4 Axle				2 Axle	3 Axle	4 Axle		

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-1 - Existing Peak Hour Volumes
(Intersections With Classification Counts)

AM Peak Hour						PM Peak Hour					
Pass. Veh.	Trucks			PCE	Total Volume	Pass. Veh.	Trucks			PCE	Total Volume
	2 Axle	3 Axle	4 Axle				2 Axle	3 Axle	4 Axle		

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

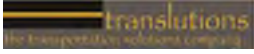


Table C-1 - Existing Peak Hour Volumes
(Intersections With Classification Counts)

AM Peak Hour						PM Peak Hour					
Pass. Veh.	Trucks			PCE	Total Volume	Pass. Veh.	Trucks			PCE	Total Volume
	2 Axle	3 Axle	4 Axle				2 Axle	3 Axle	4 Axle		

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-1 - Existing Peak Hour Volumes
(Intersections With Classification Counts)

	AM Peak Hour					PM Peak Hour						
	Pass. Veh.	Trucks			Total PCE Volume	Pass. Veh.	Trucks			Total PCE Volume		
		2 Axle	3 Axle	4 Axle			PCE	2 Axle	3 Axle		4 Axle	PCE
6 . Morton Road/Box Springs Road												
NBL	0	0	0	0	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0	0	0	0	0
NBR	0	0	0	0	0	0	0	0	0	0	0	0
SBL	15	1	0	0	2	17	35	1	0	0	2	37
SBT	0	0	0	0	0	0	0	0	0	0	0	0
SBR	78	1	0	0	2	80	41	0	0	0	0	41
EBL	30	1	0	0	2	32	83	1	0	0	2	85
EBT	122	2	0	0	3	125	606	8	0	0	12	618
EBR	0	0	0	0	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	0	0	0	0	0	0	0
WBT	634	3	1	1	10	644	409	5	0	0	8	417
WBR	4	1	0	0	2	6	23	0	0	0	0	23
North Leg												
Approach	93	2	0	0	4	97	76	1	0	0	2	78
Departure	34	2	0	0	4	38	106	1	0	0	2	108
Total	127	4	0	0	8	135	182	2	0	0	4	186
South Leg												
Approach	0	0	0	0	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
East Leg												
Approach	638	4	1	1	12	650	432	5	0	0	8	440
Departure	137	3	0	0	5	142	641	9	0	0	14	655
Total	775	7	1	1	17	792	1,073	14	0	0	22	1,095
West Leg												
Approach	152	3	0	0	5	157	689	9	0	0	14	703
Departure	712	4	1	1	12	724	450	5	0	0	8	458
Total	864	7	1	1	17	881	1,139	14	0	0	22	1,161
Total Approaches												
Approach	883	9	1	1	21	904	1,197	15	0	0	24	1,221
Departure	883	9	1	1	21	904	1,197	15	0	0	24	1,221
Total	1,766	18	2	2	42	1,808	2,394	30	0	0	48	2,442

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-2 - Existing Peak Hour Truck Percentages

	AM Peak Hour				PM Peak Hour			
	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %
1 . Sycamore Canyon Boulevard/Fair Isle Dr								
NBL	75	1	76	1.32%	111	0	111	0.00%
NBT	495	9	504	1.79%	278	7	285	2.46%
NBR	197	51	248	20.56%	444	39	483	8.07%
SBL	59	0	59	0.00%	379	1	380	0.26%
SBT	92	3	95	3.16%	386	9	395	2.28%
SBR	3	0	3	0.00%	31	0	31	0.00%
EBL	23	3	26	11.54%	7	4	11	36.36%
EBT	63	3	66	4.55%	93	4	97	4.12%
EBR	66	0	66	0.00%	98	0	98	0.00%
WBL	80	5	85	5.88%	97	4	101	3.96%
WBT	34	0	34	0.00%	90	0	90	0.00%
WBR	189	1	190	0.53%	107	0	107	0.00%
North Leg								
Approach	154	3	157		796	10	806	1.2%
Departure	707	13	720		392	11	403	2.7%
Total	861	16	877	1.8%	1,188	21	1,209	1.7%
South Leg								
Approach	767	61	828		833	46	879	5.2%
Departure	238	8	246		581	13	594	2.2%
Total	1,005	69	1,074	6.4%	1,414	59	1,473	4.0%
East Leg								
Approach	303	6	309		294	4	298	1.3%
Departure	319	54	373		916	44	960	4.6%
Total	622	60	682	8.8%	1,210	48	1,258	3.8%
West Leg								
Approach	152	6	158		198	8	206	3.9%
Departure	112	1	113		232	0	232	0.0%
Total	264	7	271	2.6%	430	8	438	1.8%
Total Approaches								
Approach	1,376	76	1,452		2,121	68	2,189	
Departure	1,376	76	1,452		2,121	68	2,189	
Total	2,752	152	2,904	5.2%	4,242	136	4,378	3.1%

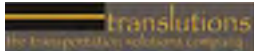


Table C-2 - Existing Peak Hour Truck Percentages

	AM Peak Hour				PM Peak Hour			
	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %
2 . I-215 Northbound Ramps/Fair Isle Dr-Box Springs Road								
NBL	58	1	59	1.69%	96	0	96	0.00%
NBT	4	0	4	0.00%	2	0	2	0.00%
NBR	3	0	3	0.00%	8	0	8	0.00%
SBL	0	0	0	0.00%	0	0	0	0.00%
SBT	0	0	0	0.00%	0	0	0	0.00%
SBR	0	0	0	0.00%	0	0	0	0.00%
EBL	159	52	211	24.64%	258	38	296	12.84%
EBT	145	3	148	2.03%	657	9	666	1.35%
EBR	0	0	0	0.00%	0	0	0	0.00%
WBL	0	0	0	0.00%	0	0	0	0.00%
WBT	244	16	260	6.15%	190	6	196	3.06%
WBR	453	4	457	0.88%	249	1	250	0.40%
North Leg								
Approach	0	0	0		0	0	0	
Departure	616	56	672		509	39	548	
Total	616	56	672	8.3%	509	39	548	7.1%
South Leg								
Approach	65	1	66		106	0	106	
Departure	0	0	0		0	0	0	
Total	65	1	66	1.5%	106	0	106	0.0%
East Leg								
Approach	697	20	717		439	7	446	
Departure	148	3	151		665	9	674	
Total	845	23	868	2.6%	1,104	16	1,120	1.4%
West Leg								
Approach	304	55	359		915	47	962	
Departure	302	17	319		286	6	292	
Total	606	72	678	10.6%	1,201	53	1,254	4.2%
Total Approaches								
Approach	1,066	76	1,142		1,460	54	1,514	
Departure	1,066	76	1,142		1,460	54	1,514	
Total	2,132	152	2,284	6.7%	2,920	108	3,028	3.6%

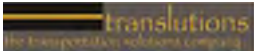


Table C-2 - Existing Peak Hour Truck Percentages

AM Peak Hour				PM Peak Hour			
Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

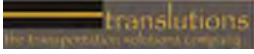


Table C-2 - Existing Peak Hour Truck Percentages

AM Peak Hour				PM Peak Hour			
Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

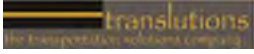


Table C-2 - Existing Peak Hour Truck Percentages

AM Peak Hour				PM Peak Hour			
Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

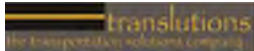


Table C-2 - Existing Peak Hour Truck Percentages

	AM Peak Hour				PM Peak Hour			
	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %	Passenger Vehicles	Total Trucks	Total Vehicle Volume	Truck %
6 . Morton Road/Box Springs Road								
NBL	0	0	0	0.00%	0	0	0	0.00%
NBT	0	0	0	0.00%	0	0	0	0.00%
NBR	0	0	0	0.00%	0	0	0	0.00%
SBL	15	1	16	6.25%	35	1	36	2.78%
SBT	0	0	0	0.00%	0	0	0	0.00%
SBR	78	1	79	1.27%	41	0	41	0.00%
EBL	30	1	31	3.23%	83	1	84	1.19%
EBT	122	2	124	1.61%	606	8	614	1.30%
EBR	0	0	0	0.00%	0	0	0	0.00%
WBL	0	0	0	0.00%	0	0	0	0.00%
WBT	634	5	639	0.78%	409	5	414	1.21%
WBR	4	1	5	20.00%	23	0	23	0.00%
North Leg								
Approach	93	2	95		76	1	77	
Departure	34	2	36		106	1	107	
Total	127	4	131	3.1%	182	2	184	1.1%
South Leg								
Approach	0	0	0		0	0	0	
Departure	0	0	0		0	0	0	
Total	0	0	0	0.0%	0	0	0	0.0%
East Leg								
Approach	638	6	644		432	5	437	
Departure	137	3	140		641	9	650	
Total	775	9	784	1.1%	1,073	14	1,087	1.3%
West Leg								
Approach	152	3	155		689	9	698	
Departure	712	6	718		450	5	455	
Total	864	9	873	1.0%	1,139	14	1,153	1.2%
Total Approaches								
Approach	883	11	894		1,197	15	1,212	
Departure	883	11	894		1,197	15	1,212	
Total	1,766	22	1,788	1.2%	2,394	30	2,424	1.2%

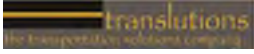


Table C-3: Existing PCE Peak Hour Volume Summary

AM Peak Hour					PM Peak Hour				
Total Veh.	Truck %	Pass. Veh.	Truck PCE	Total PCE Vol	Total Veh.	Truck %	Pass. Veh.	Truck PCE	Total PCE Vol

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

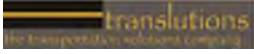


Table C-3: Existing PCE Peak Hour Volume Summary

AM Peak Hour						PM Peak Hour					
Total Veh.	Truck %	Pass. Veh.	Truck PCE	Truck PCE	Total PCE Vol	Total Veh.	Truck %	Pass. Veh.	Truck PCE	Truck PCE	Total PCE Vol

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

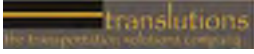


Table C-3: Existing PCE Peak Hour Volume Summary

AM Peak Hour						PM Peak Hour					
Total Veh.	Truck %	Pass. Veh.	Truck PCE	Truck PCE	Total PCE Vol	Total Veh.	Truck %	Pass. Veh.	Truck PCE	Truck PCE	Total PCE Vol

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

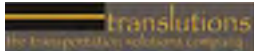


Table C-3: Existing PCE Peak Hour Volume Summary

	AM Peak Hour					PM Peak Hour					
	Total Veh.	Truck %	Pass. Veh.	Truck PCE	Total PCE Vol	Total Veh.	Truck %	Pass. Veh.	Truck PCE	Total PCE Vol	
4 . Morton Road/Woodsworth Road N											
NBL	0		0	0	0	0		0	0	0	
NBT	13		13	0	13	33		33	0	33	
NBR	5	3.1%	5	0	5	13	1.1%	13	0	13	
SBL	0		0	0	0	0		0	0	0	
SBT	26		26	0	26	19		19	0	19	
SBR	0		0	0	0	0		0	0	0	
EBL	0		0	0	0	0		0	0	0	
EBT	0		0	0	0	0		0	0	0	
EBR	0		0	0	0	0		0	0	0	
WBL	3	3.1%	3	0	3	2	1.1%	2	0	2	
WBT	0		0	0	0	0		0	0	0	
WBR	1		1	0	1	2		2	0	2	
North Leg											
Approach	26		26	0	26	19		19	0	19	
Departure	14		14	0	14	35		35	0	35	
Total	40		40	0	40	54		54	0	54	
South Leg											
Approach	18		18	0	18	46		46	0	46	
Departure	29		29	0	29	21		21	0	21	
Total	47		47	0	47	67		67	0	67	
East Leg											
Approach	4		4	0	4	4		4	0	4	
Departure	5		5	0	5	13		13	0	13	
Total	9		9	0	9	17		17	0	17	
West Leg											
Approach	0		0	0	0	0		0	0	0	
Departure	0		0	0	0	0		0	0	0	
Total	0		0	0	0	0		0	0	0	
Total Approaches											
Approach	48		48	0	48	69		69	0	69	
Departure	48		48	0	48	69		69	0	69	
Total	96		96	0	96	138		138	0	138	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

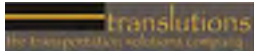


Table C-3: Existing PCE Peak Hour Volume Summary

	AM Peak Hour					PM Peak Hour					
	Total Veh.	Truck %	Pass. Veh.	Truck PCE	Total PCE Vol	Total Veh.	Truck %	Pass. Veh.	Truck PCE	Total PCE Vol	
5 . Morton Road/Woodsworth Road S											
NBL	0		0	0	0	0		0	0	0	0
NBT	17	3.1%	16	1	3	32	1.1%	32	0	0	32
NBR	12	3.1%	12	0	0	41	1.1%	41	0	0	41
SBL	1		1	0	0	0		0	0	0	0
SBT	22	3.1%	21	1	3	26	1.1%	26	0	0	26
SBR	0		0	0	0	0		0	0	0	0
EBL	0		0	0	0	0		0	0	0	0
EBT	0		0	0	0	0		0	0	0	0
EBR	0		0	0	0	0		0	0	0	0
WBL	51	3.1%	49	2	5	38	1.1%	38	0	0	38
WBT	0		0	0	0	0		0	0	0	0
WBR	0		0	0	0	1		1	0	0	1
North Leg											
Approach	23		22	1	3	26		26	0	0	26
Departure	17		16	1	3	33		33	0	0	33
Total	40		38	2	6	59		59	0	0	59
South Leg											
Approach	29		28	1	3	73		73	0	0	73
Departure	73		70	3	8	64		64	0	0	64
Total	102		98	4	11	137		137	0	0	137
East Leg											
Approach	51		49	2	5	39		39	0	0	39
Departure	13		13	0	0	41		41	0	0	41
Total	64		62	2	5	80		80	0	0	80
West Leg											
Approach	0		0	0	0	0		0	0	0	0
Departure	0		0	0	0	0		0	0	0	0
Total	0		0	0	0	0		0	0	0	0
Total Approaches											
Approach	103		99	4	11	138		138	0	0	138
Departure	103		99	4	11	138		138	0	0	138
Total	206		198	8	22	276		276	0	0	276

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

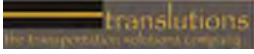


Table C-3: Existing PCE Peak Hour Volume Summary

AM Peak Hour						PM Peak Hour					
Total Veh.	Truck %	Pass. Veh.	Truck PCE	Truck PCE	Total PCE Vol	Total Veh.	Truck %	Pass. Veh.	Truck PCE	Truck PCE	Total PCE Vol

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Table C-4
Balance of Existing Peak Hour Volumes
To Maintain Consistent Flow of Vehicles

	A.M. Peak Hour Volumes			P.M. Peak Hour Volumes		
	PCE Volume	Adjust.	Balanced Volume	PCE Volume	Adjust.	Balanced Volume
6 Morton Road/Box Springs Road						
NBL	0		0	0		0
NBT	0		0	0		0
NBR	0		0	0		0
SBL	17	28	45	37	5	42
SBT	0		0	0		0
SBR	80		80	41		41
EBL	32		32	85		85
EBT	125	210	335	618	84	702
EBR	0		0	0		0
WBL	0		0	0		0
WBT	644	655	1,299	417	128	545
WBR	6	6	12	23	7	30
North Leg						
Approach	97	28	125	78	5	83
Departure	38	6	44	108	7	115
Total	135	34	169	186	12	198
South Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
East Leg						
Approach	650	661	1,311	440	135	575
Departure	142	238	380	655	89	744
Total	792	899	1,691	1,095	224	1,319
West Leg						
Approach	157	210	367	703	84	787
Departure	724	655	1,379	458	128	586
Total	881	865	1,746	1,161	212	1,373
Total Approaches						
Approach	904	899	1,803	1,221	224	1,445
Departure	904	899	1,803	1,221	224	1,445
Total	1,808	1,798	3,606	2,442	448	2,890

Table C-4
Balance of Existing Peak Hour Volumes
To Maintain Consistent Flow of Vehicles

	A.M. Peak Hour Volumes			P.M. Peak Hour Volumes		
	PCE Volume	Adjust.	Balanced Volume	PCE Volume	Adjust.	Balanced Volume
7 Day St/Ironwood Ave-Box Springs Rd						
NBL	258		258	266		266
NBT	30		30	71		71
NBR	126		126	671		671
SBL	27		27	18		18
SBT	67		67	40		40
SBR	24		24	2		2
EBL	2		2	9		9
EBT	162		162	494		494
EBR	216		216	241		241
WBL	597		597	300		300
WBT	1,029		1,029	307		307
WBR	21		21	12		12
North Leg						
Approach	118	0	118	60	0	60
Departure	53	0	53	92	0	92
Total	171	0	171	152	0	152
South Leg						
Approach	414	0	414	1,008	0	1,008
Departure	880	0	880	581	0	581
Total	1,294	0	1,294	1,589	0	1,589
East Leg						
Approach	1,647	0	1,647	619	0	619
Departure	315	0	315	1,183	0	1,183
Total	1,962	0	1,962	1,802	0	1,802
West Leg						
Approach	380	0	380	744	0	744
Departure	1,311	0	1,311	575	0	575
Total	1,691	0	1,691	1,319	0	1,319
Total Approaches						
Approach	2,559	0	2,559	2,431	0	2,431
Departure	2,559	0	2,559	2,431	0	2,431
Total	5,118	0	5,118	4,862	0	4,862

Table C-4
Balance of Existing Peak Hour Volumes
To Maintain Consistent Flow of Vehicles

	A.M. Peak Hour Volumes			P.M. Peak Hour Volumes		
	PCE Volume	Adjust.	Balanced Volume	PCE Volume	Adjust.	Balanced Volume
2 I-215 Northbound Ramps/Fair Isle Dr-Box Springs Road						
NBL	60		60	96		96
NBT	4		4	2		2
NBR	3	4	7	8	1	9
SBL	0		0	0		0
SBT	0		0	0		0
SBR	0		0	0		0
EBL	284		284	363		363
EBT	150	210	360	671	107	778
EBR	0		0	0		0
WBL	0		0	0		0
WBT	275	241	516	200	60	260
WBR	460	403	863	251	75	326
North Leg						
Approach	0	0	0	0	0	0
Departure	748	403	1,151	616	75	691
Total	748	403	1,151	616	75	691
South Leg						
Approach	67	4	71	106	1	107
Departure	0	0	0	0	0	0
Total	67	4	71	106	1	107
East Leg						
Approach	735	644	1,379	451	135	586
Departure	153	214	367	679	108	787
Total	888	858	1,746	1,130	243	1,373
West Leg						
Approach	434	210	644	1,034	107	1,141
Departure	335	241	576	296	60	356
Total	769	451	1,220	1,330	167	1,497
Total Approaches						
Approach	1,236	858	2,094	1,591	243	1,834
Departure	1,236	858	2,094	1,591	243	1,834
Total	2,472	1,716	4,188	3,182	486	3,668

Table C-4
Balance of Existing Peak Hour Volumes
To Maintain Consistent Flow of Vehicles

	A.M. Peak Hour Volumes			P.M. Peak Hour Volumes		
	PCE Volume	Adjust.	Balanced Volume	PCE Volume	Adjust.	Balanced Volume
6 Morton Road/Box Springs Road						
NBL	0		0	0		0
NBT	0		0	0		0
NBR	0		0	0		0
SBL	45		45	42		42
SBT	0		0	0		0
SBR	80		80	41		41
EBL	32		32	85		85
EBT	335		335	702		702
EBR	0		0	0		0
WBL	0		0	0		0
WBT	1,299		1,299	545		545
WBR	12		12	30		30
North Leg						
Approach	125	0	125	83	0	83
Departure	44	0	44	115	0	115
Total	169	0	169	198	0	198
South Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
East Leg						
Approach	1,311	0	1,311	575	0	575
Departure	380	0	380	744	0	744
Total	1,691	0	1,691	1,319	0	1,319
West Leg						
Approach	367	0	367	787	0	787
Departure	1,379	0	1,379	586	0	586
Total	1,746	0	1,746	1,373	0	1,373
Total Approaches						
Approach	1,803	0	1,803	1,445	0	1,445
Departure	1,803	0	1,803	1,445	0	1,445
Total	3,606	0	3,606	2,890	0	2,890

Table C-4
Balance of Existing Peak Hour Volumes
To Maintain Consistent Flow of Vehicles

	A.M. Peak Hour Volumes			P.M. Peak Hour Volumes		
	PCE Volume	Adjust.	Balanced Volume	PCE Volume	Adjust.	Balanced Volume
1 Sycamore Canyon Boulevard/Fair Isle Dr						
NBL	77		77	111		111
NBT	510		510	289		289
NBR	315	-53	262	548	-128	420
SBL	59	-10	49	381	-89	292
SBT	97		97	400		400
SBR	3		3	31		31
EBL	28		28	13		13
EBT	68	-12	56	99	-23	76
EBR	66		66	98		98
WBL	88	300	388	103	98	201
WBT	34	116	150	90	86	176
WBR	191	650	841	107	102	209
North Leg						
Approach	159	-10	149	812	-89	723
Departure	729	650	1,379	409	102	511
Total	888	640	1,528	1,221	13	1,234
South Leg						
Approach	902	-53	849	948	-128	820
Departure	251	300	551	601	98	699
Total	1,153	247	1,400	1,549	-30	1,519
East Leg						
Approach	313	1,066	1,379	300	286	586
Departure	442	-75	367	1,028	-240	788
Total	755	991	1,746	1,328	46	1,374
West Leg						
Approach	162	-12	150	210	-23	187
Departure	114	116	230	232	86	318
Total	276	104	380	442	63	505
Total Approaches						
Approach	1,536	991	2,527	2,270	46	2,316
Departure	1,536	991	2,527	2,270	46	2,316
Total	3,072	1,982	5,054	4,540	92	4,632

Table C-4
Balance of Existing Peak Hour Volumes
To Maintain Consistent Flow of Vehicles

	A.M. Peak Hour Volumes			P.M. Peak Hour Volumes		
	PCE Volume	Adjust.	Balanced Volume	PCE Volume	Adjust.	Balanced Volume
2 I-215 Northbound Ramps/Fair Isle Dr-Box Springs Road						
NBL	0		0	0		0
NBT	0		0	0		0
NBR	0		0	0		0
SBL	45		45	42		42
SBT	0		0	0		0
SBR	80		80	41		41
EBL	32		32	85		85
EBT	335		335	702		702
EBR	0		0	0		0
WBL	0		0	0		0
WBT	1,299		1,299	545		545
WBR	12		12	30		30
North Leg						
Approach	125	0	125	83	0	83
Departure	44	0	44	115	0	115
Total	169	0	169	198	0	198
South Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
East Leg						
Approach	1,311	0	1,311	575	0	575
Departure	380	0	380	744	0	744
Total	1,691	0	1,691	1,319	0	1,319
West Leg						
Approach	367	0	367	787	0	787
Departure	1,379	0	1,379	586	0	586
Total	1,746	0	1,746	1,373	0	1,373
Total Approaches						
Approach	1,803	0	1,803	1,445	0	1,445
Departure	1,803	0	1,803	1,445	0	1,445
Total	3,606	0	3,606	2,890	0	2,890

Table C-5: Existing With Project Peak Hour Volume Summary

	AM Peak Hour			PM Peak Hour		
	Exist PCE Volume	Project Trips	Exist WP	Exist PCE Volume	Project Trips	Exist WP
1 . Sycamore Canyon Boulevard/Fair Isle Dr						
NBL	77	0	77	111	0	111
NBT	510	0	510	289	0	289
NBR	262	5	267	420	17	437
SBL	49	4	53	292	13	305
SBT	97	0	97	400	0	400
SBR	3	0	3	31	0	31
EBL	28	0	28	13	0	13
EBT	56	0	56	76	0	76
EBR	66	0	66	98	0	98
WBL	388	15	403	201	10	211
WBT	150	0	150	176	0	176
WBR	841	12	853	209	8	217
North Leg						
Approach	149	4	153	723	13	736
Departure	1,379	12	1,391	511	8	519
Total	1,528	16	1,544	1,234	21	1,255
South Leg						
Approach	849	5	854	820	17	837
Departure	551	15	566	699	10	709
Total	1,400	20	1,420	1,519	27	1,546
East Leg						
Approach	1,379	27	1,406	586	18	604
Departure	367	9	376	788	30	818
Total	1,746	36	1,782	1,374	48	1,422
West Leg						
Approach	150	0	150	187	0	187
Departure	230	0	230	318	0	318
Total	380	0	380	505	0	505
Total Approaches						
Approach	2,527	36	2,563	2,316	48	2,364
Departure	2,527	36	2,563	2,316	48	2,364
Total	5,054	72	5,126	4,632	96	4,728

Table C-5: Existing With Project Peak Hour Volume Summary

	AM Peak Hour			PM Peak Hour		
	Exist PCE Volume	Project Trips	Exist WP	Exist PCE Volume	Project Trips	Exist WP
2 . I-215 Northbound Ramps/Fair Isle Dr-Box Springs Road						
NBL	60	0	60	96	0	96
NBT	4	0	4	2	0	2
NBR	7	5	12	9	17	26
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	0	0	0	0	0	0
EBL	284	0	284	363	0	363
EBT	360	9	369	778	30	808
EBR	0	0	0	0	0	0
WBL	0	0	0	0	0	0
WBT	516	27	543	260	18	278
WBR	863	15	878	326	10	336
North Leg						
Approach	0	0	0	0	0	0
Departure	1,151	15	1,166	691	10	701
Total	1,151	15	1,166	691	10	701
South Leg						
Approach	71	5	76	107	17	124
Departure	0	0	0	0	0	0
Total	71	5	76	107	17	124
East Leg						
Approach	1,379	42	1,421	586	28	614
Departure	367	14	381	787	47	834
Total	1,746	56	1,802	1,373	75	1,448
West Leg						
Approach	644	9	653	1,141	30	1,171
Departure	576	27	603	356	18	374
Total	1,220	36	1,256	1,497	48	1,545
Total Approaches						
Approach	2,094	56	2,150	1,834	75	1,909
Departure	2,094	56	2,150	1,834	75	1,909
Total	4,188	112	4,300	3,668	150	3,818

Table C-5: Existing With Project Peak Hour Volume Summary

	AM Peak Hour			PM Peak Hour		
	Exist PCE Volume	Project Trips	Exist WP	Exist PCE Volume	Project Trips	Exist WP
3 . Morton Road/Project Driveway						
NBL	0	0	0	0	0	0
NBT	4	0	4	9	0	9
NBR	0	20	20	0	67	67
SBL	0	0	0	0	0	0
SBT	7	0	7	5	0	5
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	0	0	0	0	0	0
WBL	0	60	60	0	40	40
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	7	0	7	5	0	5
Departure	4	0	4	9	0	9
Total	11	0	11	14	0	14
South Leg						
Approach	4	20	24	9	67	76
Departure	7	60	67	5	40	45
Total	11	80	91	14	107	121
East Leg						
Approach	0	60	60	0	40	40
Departure	0	20	20	0	67	67
Total	0	80	80	0	107	107
West Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
Total Approaches						
Approach	11	80	91	14	107	121
Departure	11	80	91	14	107	121
Total	22	160	182	28	214	242

Table C-5: Existing With Project Peak Hour Volume Summary

	AM Peak Hour			PM Peak Hour		
	Exist PCE Volume	Project Trips	Exist WP	Exist PCE Volume	Project Trips	Exist WP
4 . Morton Road/Woodsworth Road N						
NBL	0	0	0	0	0	0
NBT	13	20	33	33	67	100
NBR	5	0	5	13	0	13
SBL	0	0	0	0	0	0
SBT	26	60	86	19	40	59
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	0	0	0	0	0	0
WBL	3	0	3	2	0	2
WBT	0	0	0	0	0	0
WBR	1	0	1	2	0	2
North Leg						
Approach	26	60	86	19	40	59
Departure	14	20	34	35	67	102
Total	40	80	120	54	107	161
South Leg						
Approach	18	20	38	46	67	113
Departure	29	60	89	21	40	61
Total	47	80	127	67	107	174
East Leg						
Approach	4	0	4	4	0	4
Departure	5	0	5	13	0	13
Total	9	0	9	17	0	17
West Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
Total Approaches						
Approach	48	80	128	69	107	176
Departure	48	80	128	69	107	176
Total	96	160	256	138	214	352

Table C-5: Existing With Project Peak Hour Volume Summary

	AM Peak Hour			PM Peak Hour		
	Exist PCE Volume	Project Trips	Exist WP	Exist PCE Volume	Project Trips	Exist WP
5 . Morton Road/Woodsworth Road S						
NBL	0	0	0	0	0	0
NBT	19	20	39	32	67	99
NBR	12	0	12	41	0	41
SBL	1	0	1	0	0	0
SBT	24	60	84	26	40	66
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	0	0	0	0	0	0
WBL	54	0	54	38	0	38
WBT	0	0	0	0	0	0
WBR	0	0	0	1	0	1
North Leg						
Approach	25	60	85	26	40	66
Departure	19	20	39	33	67	100
Total	44	80	124	59	107	166
South Leg						
Approach	31	20	51	73	67	140
Departure	78	60	138	64	40	104
Total	109	80	189	137	107	244
East Leg						
Approach	54	0	54	39	0	39
Departure	13	0	13	41	0	41
Total	67	0	67	80	0	80
West Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
Total Approaches						
Approach	110	80	190	138	107	245
Departure	110	80	190	138	107	245
Total	220	160	380	276	214	490

Table C-5: Existing With Project Peak Hour Volume Summary

	AM Peak Hour			PM Peak Hour		
	Exist PCE Volume	Project Trips	Exist WP	Exist PCE Volume	Project Trips	Exist WP
6 . Morton Road/Box Springs Road						
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	0	0	0	0	0	0
SBL	45	18	63	42	12	54
SBT	0	0	0	0	0	0
SBR	80	42	122	41	28	69
EBL	32	14	46	85	47	132
EBT	335	0	335	702	0	702
EBR	0	0	0	0	0	0
WBL	0	0	0	0	0	0
WBT	1,299	0	1,299	545	0	545
WBR	12	6	18	30	20	50
North Leg						
Approach	125	60	185	83	40	123
Departure	44	20	64	115	67	182
Total	169	80	249	198	107	305
South Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
East Leg						
Approach	1,311	6	1,317	575	20	595
Departure	380	18	398	744	12	756
Total	1,691	24	1,715	1,319	32	1,351
West Leg						
Approach	367	14	381	787	47	834
Departure	1,379	42	1,421	586	28	614
Total	1,746	56	1,802	1,373	75	1,448
Total Approaches						
Approach	1,803	80	1,883	1,445	107	1,552
Departure	1,803	80	1,883	1,445	107	1,552
Total	3,606	160	3,766	2,890	214	3,104



Table C-6: Project Completion (2023) Peak Hour Volume Summary

	AM Peak Hour							PM Peak Hour						
	Existing		Pr.		Pr.		Existing		Pr.		Pr.			
	2,021	Growth	Comp. Back.	Cumul. Pr.	Comp. NP	Project Trips	2,021	Growth	Comp. Back.	Cumul. Pr.	Comp. NP	Project Trips	Pr. Comp. WP	
1 . Sycamore Canyon Blvd/Fair Isle Dr														
NBL	77	3	80	1	81	0	81	111	4	115	4	119	0	119
NBT	510	20	530	3	533	0	533	289	12	301	12	313	0	313
NBR	262	10	272	35	307	5	312	420	17	437	121	558	17	575
SBL	49	2	51	7	58	4	62	292	12	304	5	309	13	322
SBT	97	4	101	11	112	0	112	400	16	416	5	421	0	421
SBR	3	0	3	0	3	0	3	31	1	32	0	32	0	32
EBL	28	1	29	0	29	0	29	13	1	14	0	14	0	14
EBT	56	2	58	2	60	0	60	76	3	79	2	81	0	81
EBR	66	3	69	4	73	0	73	98	4	102	2	104	0	104
WBL	388	16	404	14	418	15	433	201	8	209	8	217	10	227
WBT	150	6	156	1	157	0	157	176	7	183	2	185	0	185
WBR	841	34	875	3	878	12	890	209	8	217	7	224	8	232
North Leg														
Approach	149	6	155	18	173	4	177	723	29	752	10	762	13	775
Departure	1,379	55	1,434	6	1,440	12	1,452	511	21	532	19	551	8	559
Total	1,528	61	1,589	24	1,613	16	1,629	1,234	50	1,284	29	1,313	21	1,334
South Leg														
Approach	849	33	882	39	921	5	926	820	33	853	137	990	17	1,007
Departure	551	23	574	29	603	15	618	699	28	727	15	742	10	752
Total	1,400	56	1,456	68	1,524	20	1,544	1,519	61	1,580	152	1,732	27	1,759
East Leg														
Approach	1,379	56	1,435	18	1,453	27	1,480	586	23	609	17	626	18	644
Departure	367	14	381	44	425	9	434	788	32	820	128	948	30	978
Total	1,746	70	1,816	62	1,878	36	1,914	1,374	55	1,429	145	1,574	48	1,622
West Leg														
Approach	150	6	156	6	162	0	162	187	8	195	4	199	0	199
Departure	230	9	239	2	241	0	241	318	12	330	6	336	0	336
Total	380	15	395	8	403	0	403	505	20	525	10	535	0	535
Total Approaches														
Approach	2,527	101	2,628	81	2,709	36	2,745	2,316	93	2,409	168	2,577	48	2,625
Departure	2,527	101	2,628	81	2,709	36	2,745	2,316	93	2,409	168	2,577	48	2,625
Total	5,054	202	5,256	162	5,418	72	5,490	4,632	186	4,818	336	5,154	96	5,250

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-6: Project Completion (2023) Peak Hour Volume Summary

	AM Peak Hour							PM Peak Hour						
	Existing	Growth	Pr.	Cumul.	Pr.	Project	Pr.	Existing	Growth	Pr.	Cumul.	Pr.	Project	Pr.
	2,021		Comp.		Comp.		Comp.	2,021		Comp.		Comp.		Comp.
Total	Total	Back.	Pr.	NP	Trips	WP	Total	Total	Back.	Pr.	NP	Trips	WP	
2 . I-215 NB Ramps/Fair Isle Dr-Box Springs Rd														
NBL	60	2	62	7	69	0	69	96	4	100	3	103	0	103
NBT	4	0	4	0	4	0	4	2	0	2	0	2	0	2
NBR	7	0	7	2	9	5	14	9	0	9	7	16	17	33
SBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EBL	284	11	295	19	314	0	314	363	15	378	75	453	0	453
EBT	360	14	374	25	399	9	408	778	31	809	54	863	30	893
EBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBT	516	21	537	11	548	27	575	260	10	270	14	284	18	302
WBR	863	35	898	46	944	15	959	326	13	339	30	369	10	379
North Leg														
Approach	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Departure	1,151	46	1,197	65	1,262	15	1,277	691	28	719	105	824	10	834
Total	1,151	46	1,197	65	1,262	15	1,277	691	28	719	105	824	10	834
South Leg														
Approach	71	2	73	9	82	5	87	107	4	111	10	121	17	138
Departure	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	71	2	73	9	82	5	87	107	4	111	10	121	17	138
East Leg														
Approach	1,379	56	1,435	57	1,492	42	1,534	586	23	609	44	653	28	681
Departure	367	14	381	27	408	14	422	787	31	818	61	879	47	926
Total	1,746	70	1,816	84	1,900	56	1,956	1,373	54	1,427	105	1,532	75	1,607
West Leg														
Approach	644	25	669	44	713	9	722	1,141	46	1,187	129	1,316	30	1,346
Departure	576	23	599	18	617	27	644	356	14	370	17	387	18	405
Total	1,220	48	1,268	62	1,330	36	1,366	1,497	60	1,557	146	1,703	48	1,751
Total Approaches														
Approach	2,094	83	2,177	110	2,287	56	2,343	1,834	73	1,907	183	2,090	75	2,165
Departure	2,094	83	2,177	110	2,287	56	2,343	1,834	73	1,907	183	2,090	75	2,165
Total	4,188	166	4,354	220	4,574	112	4,686	3,668	146	3,814	366	4,180	150	4,330

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-6: Project Completion (2023) Peak Hour Volume Summary

	AM Peak Hour							PM Peak Hour							
	Existing		Pr.	Cumul.	Pr.	Project	Pr.	Existing		Pr.	Cumul.	Pr.	Project	Pr.	
	2,021	Growth	Comp.	Pr.	Comp.	Trips	Comp.	2,021	Growth	Comp.	Pr.	Comp.	Trips	Comp.	
	Total		Back.	NP	NP	WP	NP	Total		Back.	NP	NP	WP	NP	
3 Morton Rd/Project Driveway															
NBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NBT	4	0	4	0	4	0	4	9	0	9	0	9	0	9	0
NBR	0	0	0	0	0	20	20	0	0	0	0	0	0	67	67
SBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBT	7	0	7	0	7	0	7	5	0	5	0	5	0	5	5
SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	60	60	0	0	0	0	0	0	40	40
WBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Leg															
Approach	7	0	7	0	7	0	7	5	0	5	0	5	0	5	5
Departure	4	0	4	0	4	0	4	9	0	9	0	9	0	9	9
Total	11	0	11	0	11	0	11	14	0	14	0	14	0	14	14
South Leg															
Approach	4	0	4	0	4	20	24	9	0	9	0	9	67	76	76
Departure	7	0	7	0	7	60	67	5	0	5	0	5	40	45	45
Total	11	0	11	0	11	80	91	14	0	14	0	14	107	121	121
East Leg															
Approach	0	0	0	0	0	60	60	0	0	0	0	0	40	40	40
Departure	0	0	0	0	0	20	20	0	0	0	0	0	67	67	67
Total	0	0	0	0	0	80	80	0	0	0	0	0	107	107	107
West Leg															
Approach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Approaches															
Approach	11	0	11	0	11	80	91	14	0	14	0	14	107	121	121
Departure	11	0	11	0	11	80	91	14	0	14	0	14	107	121	121
Total	22	0	22	0	22	160	182	28	0	28	0	28	214	242	242

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-6: Project Completion (2023) Peak Hour Volume Summary

	AM Peak Hour							PM Peak Hour							
	Existing		Pr.	Cumul.	Pr	Project	Pr.	Existing		Pr.	Cumul.	Pr.	Project	Pr.	
	2,021	Growth	Comp.	Pr.	Comp.	Trips	Comp.	2,021	Growth	Comp.	Pr.	Comp.	Trips	Comp.	
	Total		Back.		NP	WP		Total		Back.		NP	WP		
4 . Morton Rd/Woodsworth Rd N															
NBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NBT	13	1	14	2	16	20	36	33	1	34	3	37	67	104	
NBR	5	0	5	0	5	0	5	13	1	14	0	14	0	14	
SBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SBT	26	1	27	3	30	60	90	19	1	20	4	24	40	64	
SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WBL	3	0	3	0	3	0	3	2	0	2	0	2	0	2	
WBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WBR	1	0	1	0	1	0	1	2	0	2	0	2	0	2	
North Leg															
Approach	26	1	27	3	30	60	90	19	1	20	4	24	40	64	
Departure	14	1	15	2	17	20	37	35	1	36	3	39	67	106	
Total	40	2	42	5	47	80	127	54	2	56	7	63	107	170	
South Leg															
Approach	18	1	19	2	21	20	41	46	2	48	3	51	67	118	
Departure	29	1	30	3	33	60	93	21	1	22	4	26	40	66	
Total	47	2	49	5	54	80	134	67	3	70	7	77	107	184	
East Leg															
Approach	4	0	4	0	4	0	4	4	0	4	0	4	0	4	
Departure	5	0	5	0	5	0	5	13	1	14	0	14	0	14	
Total	9	0	9	0	9	0	9	17	1	18	0	18	0	18	
West Leg															
Approach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Departure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Approaches															
Approach	48	2	50	5	55	80	135	69	3	72	7	79	107	186	
Departure	48	2	50	5	55	80	135	69	3	72	7	79	107	186	
Total	96	4	100	10	110	160	270	138	6	144	14	158	214	372	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-6: Project Completion (2023) Peak Hour Volume Summary

	AM Peak Hour							PM Peak Hour							
	Existing		Pr.	Cumul.	Pr.	Project	Pr.	Existing		Pr.	Cumul.	Pr.	Project	Pr.	
	2,021	Growth	Comp. Back.	Pr.	Comp. NP	Trips	Comp. WP	2,021	Growth	Comp. Back.	Pr.	Comp. NP	Trips	Comp. WP	
5 . Morton Rd/Woodsworth Rd S															
NBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NBT	19	1	20	2	22	20	42	32	1	33	3	36	67	103	
NBR	12	0	12	0	12	0	12	41	2	43	0	43	0	43	
SBL	1	0	1	0	1	0	1	0	0	0	0	0	0	0	
SBT	24	1	25	3	28	60	88	26	1	27	4	31	40	71	
SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WBL	54	2	56	0	56	0	56	38	2	40	0	40	0	40	
WBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WBR	0	0	0	0	0	0	0	1	0	1	0	1	0	1	
North Leg															
Approach	25	1	26	3	29	60	89	26	1	27	4	31	40	71	
Departure	19	1	20	2	22	20	42	33	1	34	3	37	67	104	
Total	44	2	46	5	51	80	131	59	2	61	7	68	107	175	
South Leg															
Approach	31	1	32	2	34	20	54	73	3	76	3	79	67	146	
Departure	78	3	81	3	84	60	144	64	3	67	4	71	40	111	
Total	109	4	113	5	118	80	198	137	6	143	7	150	107	257	
East Leg															
Approach	54	2	56	0	56	0	56	39	2	41	0	41	0	41	
Departure	13	0	13	0	13	0	13	41	2	43	0	43	0	43	
Total	67	2	69	0	69	0	69	80	4	84	0	84	0	84	
West Leg															
Approach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Departure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Approaches															
Approach	110	4	114	5	119	80	199	138	6	144	7	151	107	258	
Departure	110	4	114	5	119	80	199	138	6	144	7	151	107	258	
Total	220	8	228	10	238	160	398	276	12	288	14	302	214	516	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



Table C-6: Project Completion (2023) Peak Hour Volume Summary

	AM Peak Hour							PM Peak Hour							
	Existing		Pr.	Cumul.	Pr	Project	Pr.	Existing		Pr.	Cumul.	Pr.	Project	Pr.	
	2,021	Growth	Comp.	Pr.	Comp.	Trips	Comp.	2,021	Growth	Comp.	Pr.	Comp.	Trips	Comp.	
Total		Back.		NP		WP	Total		Back.		NP		WP		
6 . Morton Rd/Box Springs Rd															
NBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBL	45	2	47	5	52	18	70	42	2	44	7	51	12	63	
SBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBR	80	3	83	0	83	42	125	41	2	43	0	43	28	71	
EBL	32	1	33	0	33	14	47	85	3	88	0	88	47	135	
EBT	335	13	348	28	376	0	376	702	28	730	62	792	0	792	
EBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WBT	1,299	52	1,351	57	1,408	0	1,408	545	22	567	43	610	0	610	
WBR	12	0	12	4	16	6	22	30	1	31	7	38	20	58	
North Leg															
Approach	125	5	130	5	135	60	195	83	4	87	7	94	40	134	
Departure	44	1	45	4	49	20	69	115	4	119	7	126	67	193	
Total	169	6	175	9	184	80	264	198	8	206	14	220	107	327	
South Leg															
Approach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Leg															
Approach	1,311	52	1,363	61	1,424	6	1,430	575	23	598	50	648	20	668	
Departure	380	15	395	33	428	18	446	744	30	774	69	843	12	855	
Total	1,691	67	1,758	94	1,852	24	1,876	1,319	53	1,372	119	1,491	32	1,523	
West Leg															
Approach	367	14	381	28	409	14	423	787	31	818	62	880	47	927	
Departure	1,379	55	1,434	57	1,491	42	1,533	586	24	610	43	653	28	681	
Total	1,746	69	1,815	85	1,900	56	1,956	1,373	55	1,428	105	1,533	75	1,608	
Total Approaches															
Approach	1,803	71	1,874	94	1,968	80	2,048	1,445	58	1,503	119	1,622	107	1,729	
Departure	1,803	71	1,874	94	1,968	80	2,048	1,445	58	1,503	119	1,622	107	1,729	
Total	3,606	142	3,748	188	3,936	160	4,096	2,890	116	3,006	238	3,244	214	3,458	

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

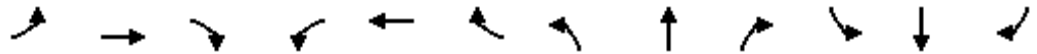
APPENDIX D: LEVEL OF SERVICE WORKSHEETS

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

1: Sycamore Canyon Blvd & Fair Isle Dr

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕		↙	↕	↗	↙	↕	↗	↙	↕	↗
Traffic Volume (veh/h)	28	56	66	388	150	841	77	510	262	49	97	3
Future Volume (veh/h)	28	56	66	388	150	841	77	510	262	49	97	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	32	64	75	441	170	956	88	580	298	56	110	3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	75	419	374	644	1974	881	116	710	317	194	346	9
Arrive On Green	0.04	0.23	0.23	0.12	0.18	0.18	0.06	0.20	0.20	0.06	0.19	0.19
Sat Flow, veh/h	1810	1805	1610	1810	3610	1610	1810	3610	1610	3510	1841	50
Grp Volume(v), veh/h	32	64	75	441	170	956	88	580	298	56	0	113
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1755	0	1891
Q Serve(g_s), s	1.7	2.8	3.8	23.4	3.9	54.7	4.8	15.4	8.3	1.5	0.0	5.2
Cycle Q Clear(g_c), s	1.7	2.8	3.8	23.4	3.9	54.7	4.8	15.4	8.3	1.5	0.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	75	419	374	644	1974	881	116	710	317	194	0	356
V/C Ratio(X)	0.43	0.15	0.20	0.68	0.09	1.09	0.76	0.82	0.94	0.29	0.00	0.32
Avail Cap(c_a), veh/h	127	419	374	644	1974	881	127	710	317	246	0	356
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.48	0.48	0.48	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.8	30.6	30.9	38.7	20.2	41.0	46.1	38.4	8.3	45.4	0.0	35.1
Incr Delay (d2), s/veh	3.9	0.8	1.2	1.5	0.0	48.5	21.5	10.1	37.5	0.8	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.3	1.6	11.6	1.6	35.3	2.8	7.7	6.0	0.7	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	31.3	32.1	40.2	20.2	89.4	67.6	48.5	45.8	46.2	0.0	37.4
LnGrp LOS	D	C	C	D	C	F	E	D	D	D	A	D
Approach Vol, veh/h		171			1567			966				169
Approach Delay, s/veh		35.3			68.1			49.4				40.3
Approach LOS		D			E			D				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	39.6	27.2	10.4	22.8	8.1	58.7	9.5	23.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	35.0	23.2	7.0	18.8	7.0	51.2	7.0	18.8				
Max Q Clear Time (g_c+I1), s	25.4	5.8	6.8	7.2	3.7	56.7	3.5	17.4				
Green Ext Time (p_c), s	1.0	0.6	0.0	0.4	0.0	0.0	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay				58.2								
HCM 6th LOS				E								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary 2: I-215 NB Ramps & Fair Isle Dr/Box Springs Rd

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↔	↔	↔	↔				
Traffic Volume (veh/h)	284	360	0	0	516	863	60	4	7	0	0	0
Future Volume (veh/h)	284	360	0	0	516	863	60	4	7	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	330	419	0	0	902	802	81	0	0			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	397	2650	0	0	1104	935	673	353	0			
Arrive On Green	0.11	0.73	0.00	0.00	0.58	0.58	0.19	0.00	0.00			
Sat Flow, veh/h	3510	3705	0	0	1900	1610	3619	1900	0			
Grp Volume(v), veh/h	330	419	0	0	902	802	81	0	0			
Grp Sat Flow(s),veh/h/ln	1755	1805	0	0	1900	1610	1810	1900	0			
Q Serve(g_s), s	9.2	3.5	0.0	0.0	37.9	41.6	1.9	0.0	0.0			
Cycle Q Clear(g_c), s	9.2	3.5	0.0	0.0	37.9	41.6	1.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h	397	2650	0	0	1104	935	673	353	0			
V/C Ratio(X)	0.83	0.16	0.00	0.00	0.82	0.86	0.12	0.00	0.00			
Avail Cap(c_a), veh/h	421	2650	0	0	1104	935	673	353	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.93	0.93	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	43.4	4.0	0.0	0.0	16.7	17.5	33.9	0.0	0.0			
Incr Delay (d2), s/veh	11.9	0.1	0.0	0.0	6.7	10.0	0.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.6	1.1	0.0	0.0	17.1	16.6	0.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	4.1	0.0	0.0	23.5	27.5	34.3	0.0	0.0			
LnGrp LOS	E	A	A	A	C	C	C	A	A			
Approach Vol, veh/h		749			1704			81				
Approach Delay, s/veh		26.7			25.4			34.3				
Approach LOS		C			C			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.4			15.3	62.1		22.6				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		73.4			12.0	57.4		18.6				
Max Q Clear Time (g_c+I1), s		5.5			11.2	43.6		3.9				
Green Ext Time (p_c), s		3.2			0.1	8.6		0.2				
Intersection Summary												
HCM 6th Ctrl Delay					26.0							
HCM 6th LOS					C							
Notes												
User approved volume balancing among the lanes for turning movement.												

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
4: Morton Rd & Wordsworth Rd N.

02/11/2021

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	1	13	5	0	26
Future Vol, veh/h	3	1	13	5	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	1	15	6	0	30

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	48	18	0	0	21
Stage 1	18	-	-	-	-
Stage 2	30	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	967	1066	-	-	1608
Stage 1	1010	-	-	-	-
Stage 2	998	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	967	1066	-	-	1608
Mov Cap-2 Maneuver	967	-	-	-	-
Stage 1	1010	-	-	-	-
Stage 2	998	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	990	1608
HCM Lane V/C Ratio	-	-	0.005	-
HCM Control Delay (s)	-	-	8.7	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
5: Morton Rd & Wordsworth Rd S.

02/11/2021

Intersection						
Int Delay, s/veh	4.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	0	19	12	1	24
Future Vol, veh/h	54	0	19	12	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	57	0	20	13	1	25

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	54	27	0	0	33	0
Stage 1	27	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	959	1054	-	-	1592	-
Stage 1	1001	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	958	1054	-	-	1592	-
Mov Cap-2 Maneuver	958	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	1000	-	-	-	-	-

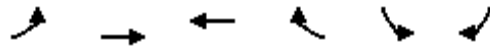
Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	958	1592
HCM Lane V/C Ratio	-	-	0.059	0.001
HCM Control Delay (s)	-	-	9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary
6: Box Springs Rd & Morton Rd

02/11/2021



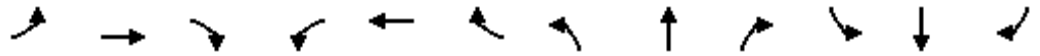
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	335	1299	12	45	80
Future Volume (veh/h)	32	335	1299	12	45	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	35	368	1427	13	49	88
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	79	2635	2370	22	344	376
Arrive On Green	0.04	0.73	0.65	0.65	0.19	0.19
Sat Flow, veh/h	1810	3705	3761	33	1810	1610
Grp Volume(v), veh/h	35	368	702	738	49	88
Grp Sat Flow(s),veh/h/ln	1810	1805	1805	1894	1810	1610
Q Serve(g_s), s	1.9	3.1	22.5	22.5	2.3	4.4
Cycle Q Clear(g_c), s	1.9	3.1	22.5	22.5	2.3	4.4
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	79	2635	1167	1224	344	376
V/C Ratio(X)	0.44	0.14	0.60	0.60	0.14	0.23
Avail Cap(c_a), veh/h	127	2635	1167	1224	344	376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	4.1	10.2	10.2	33.7	31.1
Incr Delay (d2), s/veh	3.9	0.1	2.3	2.2	0.9	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	8.7	9.1	1.1	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.5	4.2	12.5	12.4	34.6	32.5
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		403	1440		137	
Approach Delay, s/veh		8.2	12.5		33.3	
Approach LOS		A	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		77.0		23.0	8.4	68.6
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		73.0		19.0	7.0	62.0
Max Q Clear Time (g_c+I1), s		5.1		6.4	3.9	24.5
Green Ext Time (p_c), s		2.7		0.3	0.0	14.1
Intersection Summary						
HCM 6th Ctrl Delay			13.0			
HCM 6th LOS			B			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

1: Sycamore Canyon Blvd & Fair Isle Dr

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗	↗	↗	↗	↗
Traffic Volume (veh/h)	13	76	98	201	176	209	111	289	420	292	400	31
Future Volume (veh/h)	13	76	98	201	176	209	111	289	420	292	400	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	14	79	102	209	183	218	116	301	438	304	417	32
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	42	401	358	376	1470	655	147	1017	454	388	542	42
Arrive On Green	0.02	0.22	0.22	0.35	0.68	0.68	0.08	0.28	0.28	0.11	0.31	0.31
Sat Flow, veh/h	1810	1805	1610	1810	3610	1610	1810	3610	1610	3510	1742	134
Grp Volume(v), veh/h	14	79	102	209	183	218	116	301	438	304	0	449
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1755	0	1876
Q Serve(g_s), s	0.7	3.2	4.7	8.4	1.6	5.0	5.7	5.9	14.2	7.6	0.0	19.5
Cycle Q Clear(g_c), s	0.7	3.2	4.7	8.4	1.6	5.0	5.7	5.9	14.2	7.6	0.0	19.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	42	401	358	376	1470	655	147	1017	454	388	0	584
V/C Ratio(X)	0.34	0.20	0.29	0.56	0.12	0.33	0.79	0.30	0.97	0.78	0.00	0.77
Avail Cap(c_a), veh/h	141	401	358	376	1470	655	201	1017	454	507	0	584
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.3	28.5	29.1	26.0	8.8	9.3	40.6	25.3	11.0	39.0	0.0	28.1
Incr Delay (d2), s/veh	4.7	1.1	2.0	1.7	0.2	1.3	13.7	0.7	34.5	5.9	0.0	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	2.0	3.4	0.6	1.7	3.0	2.6	8.9	3.5	0.0	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	29.6	31.1	27.7	9.0	10.6	54.3	26.1	45.5	44.9	0.0	37.5
LnGrp LOS	D	C	C	C	A	B	D	C	D	D	A	D
Approach Vol, veh/h		195			610			855				753
Approach Delay, s/veh		31.7			16.0			39.8				40.5
Approach LOS		C			B			D				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.7	24.0	11.3	32.0	6.1	40.6	13.9	29.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	16.0	20.0	10.0	28.0	7.0	29.0	13.0	25.0				
Max Q Clear Time (g_c+I1), s	10.4	6.7	7.7	21.5	2.7	7.0	9.6	16.2				
Green Ext Time (p_c), s	0.3	0.8	0.1	1.5	0.0	1.8	0.4	2.5				
Intersection Summary												
HCM 6th Ctrl Delay				33.3								
HCM 6th LOS				C								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary 2: I-215 NB Ramps & Fair Isle Dr/Box Springs Rd

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↔	↔	↔	↔				
Traffic Volume (veh/h)	363	778	0	0	260	326	96	2	9	0	0	0
Future Volume (veh/h)	363	778	0	0	260	326	96	2	9	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	386	828	0	0	330	312	113	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	819	2487	0	0	781	662	804	422	0			
Arrive On Green	0.23	0.69	0.00	0.00	0.41	0.41	0.22	0.00	0.00			
Sat Flow, veh/h	3510	3705	0	0	1900	1610	3619	1900	0			
Grp Volume(v), veh/h	386	828	0	0	330	312	113	0	0			
Grp Sat Flow(s),veh/h/ln	1755	1805	0	0	1900	1610	1810	1900	0			
Q Serve(g_s), s	8.5	8.3	0.0	0.0	11.1	12.7	2.3	0.0	0.0			
Cycle Q Clear(g_c), s	8.5	8.3	0.0	0.0	11.1	12.7	2.3	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h	819	2487	0	0	781	662	804	422	0			
V/C Ratio(X)	0.47	0.33	0.00	0.00	0.42	0.47	0.14	0.00	0.00			
Avail Cap(c_a), veh/h	819	2487	0	0	781	662	804	422	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.84	0.84	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	29.7	5.7	0.0	0.0	18.9	19.4	28.1	0.0	0.0			
Incr Delay (d2), s/veh	0.4	0.3	0.0	0.0	1.7	2.4	0.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.6	2.7	0.0	0.0	5.1	5.0	1.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	6.0	0.0	0.0	20.6	21.8	28.5	0.0	0.0			
LnGrp LOS	C	A	A	A	C	C	C	A	A			
Approach Vol, veh/h		1214			642			113				
Approach Delay, s/veh		13.6			21.1			28.5				
Approach LOS		B			C			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			25.0	41.0		24.0				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		62.0			21.0	37.0		20.0				
Max Q Clear Time (g_c+I1), s		10.3			10.5	14.7		4.3				
Green Ext Time (p_c), s		7.2			1.0	3.1		0.3				

Intersection Summary

HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
3: Morton Rd & Project Driveway

02/11/2021

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	0	0	9	0	0	5
Future Vol, veh/h	0	0	9	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	10	0	0	5

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	15	10	0	0	10	0
Stage 1	10	-	-	-	-	-
Stage 2	5	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	1009	1077	-	-	1623	-
Stage 1	1018	-	-	-	-	-
Stage 2	1023	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	1009	1077	-	-	1623	-
Mov Cap-2 Maneuver	1009	-	-	-	-	-
Stage 1	1018	-	-	-	-	-
Stage 2	1023	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1623
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

HCM 6th TWSC
4: Morton Rd & Wordsworth Rd N.

02/11/2021

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	2	2	33	13	0	19
Future Vol, veh/h	2	2	33	13	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	3	44	17	0	25

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	78	53	0	0	61	0
Stage 1	53	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	930	1020	-	-	1555	-
Stage 1	975	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	930	1020	-	-	1555	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	1003	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	973	1555
HCM Lane V/C Ratio	-	-	0.005	-
HCM Control Delay (s)	-	-	8.7	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
5: Morton Rd & Wordsworth Rd S.

02/11/2021

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	1	32	41	0	26
Future Vol, veh/h	38	1	32	41	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	43	1	36	46	0	29

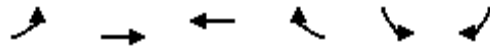
Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	88	59	0	0	82
Stage 1	59	-	-	-	-
Stage 2	29	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	918	1012	-	-	1528
Stage 1	969	-	-	-	-
Stage 2	999	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	918	1012	-	-	1528
Mov Cap-2 Maneuver	918	-	-	-	-
Stage 1	969	-	-	-	-
Stage 2	999	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	920	1528
HCM Lane V/C Ratio	-	-	0.048	-
HCM Control Delay (s)	-	-	9.1	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th Signalized Intersection Summary
6: Box Springs Rd & Morton Rd

02/11/2021



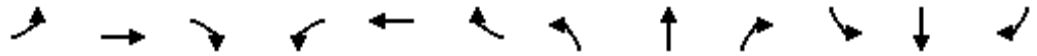
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↗		↙	↘
Traffic Volume (veh/h)	85	702	545	30	42	41
Future Volume (veh/h)	85	702	545	30	42	41
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	89	731	568	31	44	43
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	126	2407	1925	105	442	505
Arrive On Green	0.07	0.67	0.55	0.55	0.24	0.24
Sat Flow, veh/h	1810	3705	3576	190	1810	1610
Grp Volume(v), veh/h	89	731	294	305	44	43
Grp Sat Flow(s),veh/h/ln	1810	1805	1805	1866	1810	1610
Q Serve(g_s), s	4.3	7.6	7.8	7.9	1.7	1.7
Cycle Q Clear(g_c), s	4.3	7.6	7.8	7.9	1.7	1.7
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	126	2407	998	1032	442	505
V/C Ratio(X)	0.71	0.30	0.29	0.30	0.10	0.09
Avail Cap(c_a), veh/h	342	2407	998	1032	442	505
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	6.3	10.7	10.8	26.3	21.8
Incr Delay (d2), s/veh	7.2	0.3	0.8	0.7	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.6	3.1	3.2	0.8	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.1	6.6	11.5	11.5	26.8	22.1
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		820	599		87	
Approach Delay, s/veh		11.1	11.5		24.5	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.0		26.0	10.2	53.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		60.0		22.0	17.0	39.0
Max Q Clear Time (g_c+I1), s		9.6		3.7	6.3	9.9
Green Ext Time (p_c), s		6.1		0.2	0.1	3.9
Intersection Summary						
HCM 6th Ctrl Delay			12.0			
HCM 6th LOS			B			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

1: Sycamore Canyon Blvd & Fair Isle Dr

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗	↗	↗	↗	↗
Traffic Volume (veh/h)	29	60	73	418	157	878	81	533	307	58	112	3
Future Volume (veh/h)	29	60	73	418	157	878	81	533	307	58	112	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	33	68	83	475	178	998	92	606	349	66	127	3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	76	383	341	679	1969	878	117	679	303	227	348	8
Arrive On Green	0.04	0.21	0.21	0.12	0.18	0.18	0.06	0.19	0.19	0.06	0.19	0.19
Sat Flow, veh/h	1810	1805	1610	1810	3610	1610	1810	3610	1610	3510	1848	44
Grp Volume(v), veh/h	33	68	83	475	178	998	92	606	349	66	0	130
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1755	0	1892
Q Serve(g_s), s	1.8	3.1	4.3	25.2	4.1	37.2	5.0	16.4	18.8	1.8	0.0	6.0
Cycle Q Clear(g_c), s	1.8	3.1	4.3	25.2	4.1	37.2	5.0	16.4	18.8	1.8	0.0	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	76	383	341	679	1969	878	117	679	303	227	0	356
V/C Ratio(X)	0.43	0.18	0.24	0.70	0.09	1.14	0.79	0.89	1.15	0.29	0.00	0.37
Avail Cap(c_a), veh/h	127	383	341	679	1969	878	127	679	303	246	0	356
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.40	0.40	0.40	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.7	32.3	32.7	38.4	20.3	19.1	46.1	39.6	40.6	44.6	0.0	35.4
Incr Delay (d2), s/veh	3.9	1.0	1.7	1.3	0.0	67.7	25.5	16.5	99.7	0.7	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.4	1.8	12.4	1.7	32.1	3.1	8.7	15.7	0.8	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	33.3	34.4	39.7	20.4	86.7	71.6	56.1	140.3	45.3	0.0	38.3
LnGrp LOS	D	C	C	D	C	F	E	E	F	D	A	D
Approach Vol, veh/h		184			1651			1047			196	
Approach Delay, s/veh		36.9			66.0			85.5			40.6	
Approach LOS		D			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.5	25.2	10.5	22.8	8.2	58.5	10.5	22.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	37.0	21.2	7.0	18.8	7.0	51.2	7.0	18.8				
Max Q Clear Time (g_c+I1), s	27.2	6.3	7.0	8.0	3.8	39.2	3.8	20.8				
Green Ext Time (p_c), s	1.2	0.7	0.0	0.4	0.0	4.9	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				69.3								
HCM 6th LOS				E								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary 2: I-215 NB Ramps & Fair Isle Dr/Box Springs Rd

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↔	↔	↔	↔				
Traffic Volume (veh/h)	314	399	0	0	548	944	69	4	9	0	0	0
Future Volume (veh/h)	314	399	0	0	548	944	69	4	9	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	365	464	0	0	983	868	93	0	0			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	386	2650	0	0	1110	940	673	353	0			
Arrive On Green	0.11	0.73	0.00	0.00	0.58	0.58	0.19	0.00	0.00			
Sat Flow, veh/h	3510	3705	0	0	1900	1610	3619	1900	0			
Grp Volume(v), veh/h	365	464	0	0	983	868	93	0	0			
Grp Sat Flow(s),veh/h/ln	1755	1805	0	0	1900	1610	1810	1900	0			
Q Serve(g_s), s	10.3	3.9	0.0	0.0	44.6	48.7	2.1	0.0	0.0			
Cycle Q Clear(g_c), s	10.3	3.9	0.0	0.0	44.6	48.7	2.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h	386	2650	0	0	1110	940	673	353	0			
V/C Ratio(X)	0.95	0.18	0.00	0.00	0.89	0.92	0.14	0.00	0.00			
Avail Cap(c_a), veh/h	386	2650	0	0	1110	940	673	353	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.90	0.90	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	44.2	4.1	0.0	0.0	17.9	18.8	34.0	0.0	0.0			
Incr Delay (d2), s/veh	29.9	0.1	0.0	0.0	10.5	15.8	0.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	20.9	20.4	1.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.1	4.2	0.0	0.0	28.4	34.6	34.4	0.0	0.0			
LnGrp LOS	E	A	A	A	C	C	C	A	A			
Approach Vol, veh/h		829			1851			93				
Approach Delay, s/veh		35.0			31.3			34.4				
Approach LOS		C			C			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.4			15.0	62.4		22.6				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		73.4			11.0	58.4		18.6				
Max Q Clear Time (g_c+I1), s		5.9			12.3	50.7		4.1				
Green Ext Time (p_c), s		3.5			0.0	5.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay					32.5							
HCM 6th LOS					C							
Notes												
User approved volume balancing among the lanes for turning movement.												

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
4: Morton Rd & Wordsworth Rd N.

02/11/2021

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	3	1	16	5	0	30
Future Vol, veh/h	3	1	16	5	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	1	19	6	0	35

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	57	22	0	0	25
Stage 1	22	-	-	-	-
Stage 2	35	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	955	1061	-	-	1603
Stage 1	1006	-	-	-	-
Stage 2	993	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	955	1061	-	-	1603
Mov Cap-2 Maneuver	955	-	-	-	-
Stage 1	1006	-	-	-	-
Stage 2	993	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	979	1603
HCM Lane V/C Ratio	-	-	0.005	-
HCM Control Delay (s)	-	-	8.7	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
5: Morton Rd & Wordsworth Rd S.

02/11/2021

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	0	22	12	1	28
Future Vol, veh/h	56	0	22	12	1	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	0	23	13	1	29

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	61	30	0	0	36
Stage 1	30	-	-	-	-
Stage 2	31	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	950	1050	-	-	1588
Stage 1	998	-	-	-	-
Stage 2	997	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	949	1050	-	-	1588
Mov Cap-2 Maneuver	949	-	-	-	-
Stage 1	998	-	-	-	-
Stage 2	996	-	-	-	-

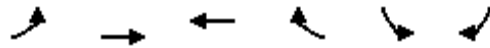
Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	949	1588
HCM Lane V/C Ratio	-	-	0.062	0.001
HCM Control Delay (s)	-	-	9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary
6: Box Springs Rd & Morton Rd

02/11/2021



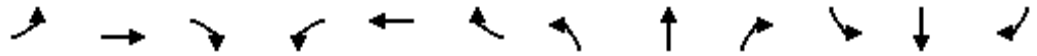
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↗		↘	↙
Traffic Volume (veh/h)	33	376	1408	16	52	83
Future Volume (veh/h)	33	376	1408	16	52	83
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	36	413	1547	18	57	91
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	80	2635	2360	27	344	377
Arrive On Green	0.04	0.73	0.65	0.65	0.19	0.19
Sat Flow, veh/h	1810	3705	3750	42	1810	1610
Grp Volume(v), veh/h	36	413	763	802	57	91
Grp Sat Flow(s),veh/h/ln	1810	1805	1805	1892	1810	1610
Q Serve(g_s), s	1.9	3.5	26.0	26.0	2.6	4.6
Cycle Q Clear(g_c), s	1.9	3.5	26.0	26.0	2.6	4.6
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	80	2635	1166	1222	344	377
V/C Ratio(X)	0.45	0.16	0.65	0.66	0.17	0.24
Avail Cap(c_a), veh/h	127	2635	1166	1222	344	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	4.1	10.9	10.9	33.9	31.1
Incr Delay (d2), s/veh	3.9	0.1	2.9	2.8	1.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.1	10.1	10.6	1.3	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.5	4.2	13.8	13.6	34.9	32.6
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		449	1565		148	
Approach Delay, s/veh		8.0	13.7		33.5	
Approach LOS		A	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		77.0		23.0	8.4	68.6
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		73.0		19.0	7.0	62.0
Max Q Clear Time (g_c+I1), s		5.5		6.6	3.9	28.0
Green Ext Time (p_c), s		3.1		0.3	0.0	15.5
Intersection Summary						
HCM 6th Ctrl Delay			13.9			
HCM 6th LOS			B			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

1: Sycamore Canyon Blvd & Fair Isle Dr

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗	↗	↗	↗	↗
Traffic Volume (veh/h)	14	81	104	217	185	224	119	313	558	309	421	32
Future Volume (veh/h)	14	81	104	217	185	224	119	313	558	309	421	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	15	84	108	226	193	233	124	326	581	322	439	33
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	44	441	394	318	1429	637	155	1043	465	397	552	41
Arrive On Green	0.02	0.24	0.24	0.29	0.66	0.66	0.09	0.29	0.29	0.11	0.32	0.32
Sat Flow, veh/h	1810	1805	1610	1810	3610	1610	1810	3610	1610	3510	1745	131
Grp Volume(v), veh/h	15	84	108	226	193	233	124	326	581	322	0	472
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1755	0	1876
Q Serve(g_s), s	0.7	3.3	4.9	10.0	1.8	5.8	6.1	6.4	16.3	8.1	0.0	20.7
Cycle Q Clear(g_c), s	0.7	3.3	4.9	10.0	1.8	5.8	6.1	6.4	16.3	8.1	0.0	20.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	44	441	394	318	1429	637	155	1043	465	397	0	593
V/C Ratio(X)	0.34	0.19	0.27	0.71	0.14	0.37	0.80	0.31	1.25	0.81	0.00	0.80
Avail Cap(c_a), veh/h	141	441	394	318	1429	637	181	1043	465	429	0	593
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	26.9	27.5	29.7	9.5	10.2	40.4	25.0	12.6	39.0	0.0	28.1
Incr Delay (d2), s/veh	4.5	1.0	1.7	6.4	0.2	1.4	19.3	0.8	128.9	10.5	0.0	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	2.0	4.4	0.7	2.0	3.5	2.8	22.1	4.0	0.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	27.9	29.3	36.1	9.7	11.6	59.7	25.8	141.5	49.5	0.0	38.7
LnGrp LOS	D	C	C	D	A	B	E	C	F	D	A	D
Approach Vol, veh/h		207			652			1031			794	
Approach Delay, s/veh		30.0			19.5			95.1			43.1	
Approach LOS		C			B			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.8	26.0	11.7	32.5	6.2	39.6	14.2	30.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	15.0	22.0	9.0	28.0	7.0	30.0	11.0	26.0				
Max Q Clear Time (g_c+I1), s	12.0	6.9	8.1	22.7	2.7	7.8	10.1	18.3				
Green Ext Time (p_c), s	0.2	0.9	0.0	1.4	0.0	2.0	0.1	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			56.3									
HCM 6th LOS			E									

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

2: I-215 NB Ramps & Fair Isle Dr/Box Springs Rd

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↔	↔	↔	↔				
Traffic Volume (veh/h)	453	863	0	0	284	369	103	2	16	0	0	0
Future Volume (veh/h)	453	863	0	0	284	369	103	2	16	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	482	918	0	0	370	348	127	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	858	2487	0	0	760	644	804	422	0			
Arrive On Green	0.24	0.69	0.00	0.00	0.40	0.40	0.22	0.00	0.00			
Sat Flow, veh/h	3510	3705	0	0	1900	1610	3619	1900	0			
Grp Volume(v), veh/h	482	918	0	0	370	348	127	0	0			
Grp Sat Flow(s),veh/h/ln	1755	1805	0	0	1900	1610	1810	1900	0			
Q Serve(g_s), s	10.8	9.5	0.0	0.0	13.1	14.9	2.5	0.0	0.0			
Cycle Q Clear(g_c), s	10.8	9.5	0.0	0.0	13.1	14.9	2.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h	858	2487	0	0	760	644	804	422	0			
V/C Ratio(X)	0.56	0.37	0.00	0.00	0.49	0.54	0.16	0.00	0.00			
Avail Cap(c_a), veh/h	858	2487	0	0	760	644	804	422	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.76	0.76	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	29.8	5.8	0.0	0.0	20.1	20.7	28.2	0.0	0.0			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	2.2	3.2	0.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.5	3.1	0.0	0.0	6.0	6.0	1.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	6.2	0.0	0.0	22.3	23.9	28.6	0.0	0.0			
LnGrp LOS	C	A	A	A	C	C	C	A	A			
Approach Vol, veh/h		1400			718			127				
Approach Delay, s/veh		14.5			23.1			28.6				
Approach LOS		B			C			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			26.0	40.0		24.0				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		62.0			22.0	36.0		20.0				
Max Q Clear Time (g_c+I1), s		11.5			12.8	16.9		4.5				
Green Ext Time (p_c), s		8.3			1.3	3.4		0.3				
Intersection Summary												
HCM 6th Ctrl Delay					18.1							
HCM 6th LOS					B							
Notes												
User approved volume balancing among the lanes for turning movement.												

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
4: Morton Rd & Wordsworth Rd N.

02/11/2021

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	2	2	37	14	0	24
Future Vol, veh/h	2	2	37	14	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	3	49	19	0	32

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	91	59	0	0	68	0
Stage 1	59	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	914	1012	-	-	1546	-
Stage 1	969	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	914	1012	-	-	1546	-
Mov Cap-2 Maneuver	914	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	996	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	961	1546
HCM Lane V/C Ratio	-	-	0.006	-
HCM Control Delay (s)	-	-	8.8	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
5: Morton Rd & Wordsworth Rd S.

02/11/2021

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	1	36	43	0	31
Future Vol, veh/h	40	1	36	43	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	45	1	40	48	0	35

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	99	64	0	0	88
Stage 1	64	-	-	-	-
Stage 2	35	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	905	1006	-	-	1520
Stage 1	964	-	-	-	-
Stage 2	993	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	905	1006	-	-	1520
Mov Cap-2 Maneuver	905	-	-	-	-
Stage 1	964	-	-	-	-
Stage 2	993	-	-	-	-

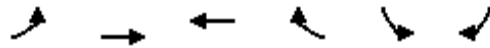
Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	907	1520
HCM Lane V/C Ratio	-	-	0.051	-
HCM Control Delay (s)	-	-	9.2	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary
6: Box Springs Rd & Morton Rd

02/11/2021



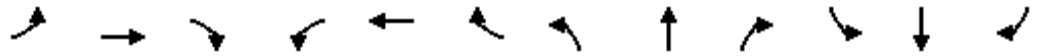
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶		↶	↷
Traffic Volume (veh/h)	88	792	610	38	51	43
Future Volume (veh/h)	88	792	610	38	51	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	92	825	635	40	53	45
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	127	2447	1943	122	422	488
Arrive On Green	0.07	0.68	0.56	0.56	0.23	0.23
Sat Flow, veh/h	1810	3705	3544	217	1810	1610
Grp Volume(v), veh/h	92	825	332	343	53	45
Grp Sat Flow(s),veh/h/ln	1810	1805	1805	1861	1810	1610
Q Serve(g_s), s	4.5	8.6	8.9	8.9	2.1	1.8
Cycle Q Clear(g_c), s	4.5	8.6	8.9	8.9	2.1	1.8
Prop In Lane	1.00			0.12	1.00	1.00
Lane Grp Cap(c), veh/h	127	2447	1017	1048	422	488
V/C Ratio(X)	0.73	0.34	0.33	0.33	0.13	0.09
Avail Cap(c_a), veh/h	322	2447	1017	1048	422	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	6.1	10.5	10.5	27.2	22.5
Incr Delay (d2), s/veh	7.7	0.4	0.9	0.8	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.9	3.5	3.6	1.0	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.7	6.4	11.4	11.4	27.9	22.8
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		917	675		98	
Approach Delay, s/veh		10.7	11.4		25.6	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		65.0		25.0	10.3	54.7
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		61.0		21.0	16.0	41.0
Max Q Clear Time (g_c+I1), s		10.6		4.1	6.5	10.9
Green Ext Time (p_c), s		7.1		0.2	0.1	4.6
Intersection Summary						
HCM 6th Ctrl Delay			11.8			
HCM 6th LOS			B			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

1: Sycamore Canyon Blvd & Fair Isle Dr

02/12/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗	↗	↗	↗	↗
Traffic Volume (veh/h)	29	60	73	433	157	890	81	533	312	62	112	3
Future Volume (veh/h)	29	60	73	433	157	890	81	533	312	62	112	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	33	68	83	492	178	1011	92	606	355	70	127	3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	76	383	341	679	1969	878	117	679	303	227	348	8
Arrive On Green	0.04	0.21	0.21	0.12	0.18	0.18	0.06	0.19	0.19	0.06	0.19	0.19
Sat Flow, veh/h	1810	1805	1610	1810	3610	1610	1810	3610	1610	3510	1848	44
Grp Volume(v), veh/h	33	68	83	492	178	1011	92	606	355	70	0	130
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1755	0	1892
Q Serve(g_s), s	1.8	3.1	4.3	26.2	4.1	37.2	5.0	16.4	18.8	1.9	0.0	6.0
Cycle Q Clear(g_c), s	1.8	3.1	4.3	26.2	4.1	37.2	5.0	16.4	18.8	1.9	0.0	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	76	383	341	679	1969	878	117	679	303	227	0	356
V/C Ratio(X)	0.43	0.18	0.24	0.72	0.09	1.15	0.79	0.89	1.17	0.31	0.00	0.37
Avail Cap(c_a), veh/h	127	383	341	679	1969	878	127	679	303	246	0	356
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.34	0.34	0.34	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.7	32.3	32.7	38.8	20.3	19.1	46.1	39.6	40.6	44.6	0.0	35.4
Incr Delay (d2), s/veh	3.9	1.0	1.7	1.3	0.0	73.1	25.5	16.5	107.0	0.8	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.4	1.8	12.9	1.7	33.4	3.1	8.7	16.3	0.8	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	33.3	34.4	40.2	20.4	92.1	71.6	56.1	147.6	45.4	0.0	38.3
LnGrp LOS	D	C	C	D	C	F	E	E	F	D	A	D
Approach Vol, veh/h		184			1681			1053			200	
Approach Delay, s/veh		36.9			69.3			88.3			40.8	
Approach LOS		D			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.5	25.2	10.5	22.8	8.2	58.5	10.5	22.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	37.0	21.2	7.0	18.8	7.0	51.2	7.0	18.8				
Max Q Clear Time (g_c+I1), s	28.2	6.3	7.0	8.0	3.8	39.2	3.9	20.8				
Green Ext Time (p_c), s	1.2	0.7	0.0	0.4	0.0	5.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				72.0								
HCM 6th LOS				E								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary 2: I-215 NB Ramps & Fair Isle Dr/Box Springs Rd

02/12/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↔	↔	↔	↔				
Traffic Volume (veh/h)	314	408	0	0	575	959	69	4	14	0	0	0
Future Volume (veh/h)	314	408	0	0	575	959	69	4	14	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	365	474	0	0	1004	892	50	46	16			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	386	2650	0	0	1110	940	337	251	87			
Arrive On Green	0.11	0.73	0.00	0.00	0.58	0.58	0.19	0.19	0.19			
Sat Flow, veh/h	3510	3705	0	0	1900	1610	1810	1347	469			
Grp Volume(v), veh/h	365	474	0	0	1004	892	50	0	62			
Grp Sat Flow(s),veh/h/ln	1755	1805	0	0	1900	1610	1810	0	1816			
Q Serve(g_s), s	10.3	4.0	0.0	0.0	46.6	51.7	2.3	0.0	2.9			
Cycle Q Clear(g_c), s	10.3	4.0	0.0	0.0	46.6	51.7	2.3	0.0	2.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.26			
Lane Grp Cap(c), veh/h	386	2650	0	0	1110	940	337	0	338			
V/C Ratio(X)	0.95	0.18	0.00	0.00	0.90	0.95	0.15	0.00	0.18			
Avail Cap(c_a), veh/h	386	2650	0	0	1110	940	337	0	338			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.90	0.90	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	44.2	4.1	0.0	0.0	18.3	19.4	34.1	0.0	34.3			
Incr Delay (d2), s/veh	29.9	0.1	0.0	0.0	12.0	19.3	0.9	0.0	1.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.3	0.0	0.0	22.1	22.4	1.1	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.1	4.2	0.0	0.0	30.4	38.7	35.0	0.0	35.5			
LnGrp LOS	E	A	A	A	C	D	D	A	D			
Approach Vol, veh/h		839			1896			112				
Approach Delay, s/veh		34.6			34.3			35.3				
Approach LOS		C			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.4			15.0	62.4		22.6				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		73.4			11.0	58.4		18.6				
Max Q Clear Time (g_c+1), s		6.0			12.3	53.7		4.9				
Green Ext Time (p_c), s		3.6			0.0	3.9		0.3				
Intersection Summary												
HCM 6th Ctrl Delay					34.4							
HCM 6th LOS					C							
Notes												
User approved volume balancing among the lanes for turning movement.												

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
3: Morton Rd & Project Driveway

02/12/2021

Intersection						
Int Delay, s/veh	5.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	0	4	20	0	7
Future Vol, veh/h	60	0	4	20	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	65	0	4	22	0	8

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	23	15	0	0	26
Stage 1	15	-	-	-	-
Stage 2	8	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	998	1070	-	-	1601
Stage 1	1013	-	-	-	-
Stage 2	1020	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	998	1070	-	-	1601
Mov Cap-2 Maneuver	998	-	-	-	-
Stage 1	1013	-	-	-	-
Stage 2	1020	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	998	1601
HCM Lane V/C Ratio	-	-	0.065	-
HCM Control Delay (s)	-	-	8.9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 6th TWSC
4: Morton Rd & Wordsworth Rd N.

02/12/2021

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	3	1	36	5	0	90
Future Vol, veh/h	3	1	36	5	0	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	1	42	6	0	105

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	150	45	0	0	48
Stage 1	45	-	-	-	-
Stage 2	105	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	847	1031	-	-	1572
Stage 1	983	-	-	-	-
Stage 2	924	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	847	1031	-	-	1572
Mov Cap-2 Maneuver	847	-	-	-	-
Stage 1	983	-	-	-	-
Stage 2	924	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	887	1572
HCM Lane V/C Ratio	-	-	0.005	-
HCM Control Delay (s)	-	-	9.1	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
5: Morton Rd & Wordsworth Rd S.

02/12/2021

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	0	42	12	1	88
Future Vol, veh/h	56	0	42	12	1	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	0	44	13	1	93

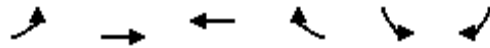
Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	146	51	0	0	57
Stage 1	51	-	-	-	-
Stage 2	95	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	851	1023	-	-	1560
Stage 1	977	-	-	-	-
Stage 2	934	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	850	1023	-	-	1560
Mov Cap-2 Maneuver	850	-	-	-	-
Stage 1	977	-	-	-	-
Stage 2	933	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	850	1560
HCM Lane V/C Ratio	-	-	0.069	0.001
HCM Control Delay (s)	-	-	9.6	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 6th Signalized Intersection Summary
 6: Box Springs Rd & Morton Rd

02/12/2021



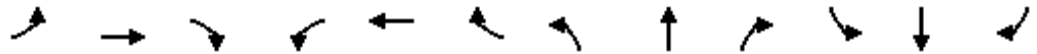
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	47	376	1408	22	70	125
Future Volume (veh/h)	47	376	1408	22	70	125
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	52	413	1547	24	77	137
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	97	2635	2316	36	344	392
Arrive On Green	0.05	0.73	0.64	0.64	0.19	0.19
Sat Flow, veh/h	1810	3705	3733	56	1810	1610
Grp Volume(v), veh/h	52	413	767	804	77	137
Grp Sat Flow(s),veh/h/ln	1810	1805	1805	1890	1810	1610
Q Serve(g_s), s	2.8	3.5	26.8	26.9	3.6	7.0
Cycle Q Clear(g_c), s	2.8	3.5	26.8	26.9	3.6	7.0
Prop In Lane	1.00			0.03	1.00	1.00
Lane Grp Cap(c), veh/h	97	2635	1149	1203	344	392
V/C Ratio(X)	0.54	0.16	0.67	0.67	0.22	0.35
Avail Cap(c_a), veh/h	127	2635	1149	1203	344	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	4.1	11.5	11.5	34.3	31.3
Incr Delay (d2), s/veh	4.6	0.1	3.1	3.0	1.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.1	10.6	11.1	1.7	6.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.7	4.2	14.6	14.5	35.8	33.7
LnGrp LOS	D	A	B	B	D	C
Approach Vol, veh/h		465	1571		214	
Approach Delay, s/veh		9.4	14.5		34.5	
Approach LOS		A	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		77.0		23.0	9.3	67.7
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		73.0		19.0	7.0	62.0
Max Q Clear Time (g_c+I1), s		5.5		9.0	4.8	28.9
Green Ext Time (p_c), s		3.1		0.4	0.0	15.4
Intersection Summary						
HCM 6th Ctrl Delay			15.4			
HCM 6th LOS			B			

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

1: Sycamore Canyon Blvd & Fair Isle Dr

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗	↗	↗	↗	↗
Traffic Volume (veh/h)	14	81	104	227	185	232	119	313	575	322	421	32
Future Volume (veh/h)	14	81	104	227	185	232	119	313	575	322	421	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	15	84	108	236	193	242	124	326	599	335	439	33
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	44	441	394	312	1417	632	155	1043	465	408	558	42
Arrive On Green	0.02	0.24	0.24	0.29	0.66	0.66	0.09	0.29	0.29	0.12	0.32	0.32
Sat Flow, veh/h	1810	1805	1610	1810	3610	1610	1810	3610	1610	3510	1745	131
Grp Volume(v), veh/h	15	84	108	236	193	242	124	326	599	335	0	472
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1755	0	1876
Q Serve(g_s), s	0.7	3.3	4.9	10.7	1.8	6.2	6.1	6.4	16.4	8.4	0.0	20.6
Cycle Q Clear(g_c), s	0.7	3.3	4.9	10.7	1.8	6.2	6.1	6.4	16.4	8.4	0.0	20.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	44	441	394	312	1417	632	155	1043	465	408	0	600
V/C Ratio(X)	0.34	0.19	0.27	0.76	0.14	0.38	0.80	0.31	1.29	0.82	0.00	0.79
Avail Cap(c_a), veh/h	141	441	394	312	1417	632	181	1043	465	429	0	600
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	26.9	27.5	30.3	9.7	10.5	40.4	25.0	12.8	38.8	0.0	27.8
Incr Delay (d2), s/veh	4.5	1.0	1.7	8.9	0.2	1.5	19.3	0.8	144.9	11.5	0.0	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	2.0	4.8	0.7	2.1	3.5	2.8	24.2	4.2	0.0	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	27.9	29.3	39.2	9.9	12.0	59.7	25.8	157.7	50.4	0.0	37.9
LnGrp LOS	D	C	C	D	A	B	E	C	F	D	A	D
Approach Vol, veh/h		207			671			1049				807
Approach Delay, s/veh		30.0			21.0			105.1				43.1
Approach LOS		C			C			F				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.5	26.0	11.7	32.8	6.2	39.3	14.5	30.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	15.0	22.0	9.0	28.0	7.0	30.0	11.0	26.0				
Max Q Clear Time (g_c+I1), s	12.7	6.9	8.1	22.6	2.7	8.2	10.4	18.4				
Green Ext Time (p_c), s	0.2	0.9	0.0	1.4	0.0	2.0	0.1	2.8				
Intersection Summary												
HCM 6th Ctrl Delay				60.5								
HCM 6th LOS				E								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary 2: I-215 NB Ramps & Fair Isle Dr/Box Springs Rd

02/11/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↔	↔	↔	↔				
Traffic Volume (veh/h)	453	893	0	0	302	379	103	2	33	0	0	0
Future Volume (veh/h)	453	893	0	0	302	379	103	2	33	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	482	950	0	0	382	362	74	53	35			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	858	2487	0	0	760	644	402	237	157			
Arrive On Green	0.24	0.69	0.00	0.00	0.40	0.40	0.22	0.22	0.22			
Sat Flow, veh/h	3510	3705	0	0	1900	1610	1810	1068	705			
Grp Volume(v), veh/h	482	950	0	0	382	362	74	0	88			
Grp Sat Flow(s),veh/h/ln	1755	1805	0	0	1900	1610	1810	0	1773			
Q Serve(g_s), s	10.8	10.0	0.0	0.0	13.6	15.7	3.0	0.0	3.7			
Cycle Q Clear(g_c), s	10.8	10.0	0.0	0.0	13.6	15.7	3.0	0.0	3.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.40			
Lane Grp Cap(c), veh/h	858	2487	0	0	760	644	402	0	394			
V/C Ratio(X)	0.56	0.38	0.00	0.00	0.50	0.56	0.18	0.00	0.22			
Avail Cap(c_a), veh/h	858	2487	0	0	760	644	402	0	394			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.74	0.74	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	29.8	5.9	0.0	0.0	20.3	20.9	28.4	0.0	28.6			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	2.4	3.5	1.0	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.5	3.3	0.0	0.0	6.3	6.3	1.4	0.0	1.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	6.2	0.0	0.0	22.6	24.4	29.4	0.0	30.0			
LnGrp LOS	C	A	A	A	C	C	C	A	C			
Approach Vol, veh/h		1432			744			162				
Approach Delay, s/veh		14.4			23.5			29.7				
Approach LOS		B			C			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			26.0	40.0		24.0				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		62.0			22.0	36.0		20.0				
Max Q Clear Time (g_c+I1), s		12.0			12.8	17.7		5.7				
Green Ext Time (p_c), s		8.7			1.3	3.5		0.5				
Intersection Summary												
HCM 6th Ctrl Delay					18.3							
HCM 6th LOS					B							
Notes												
User approved volume balancing among the lanes for turning movement.												

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
3: Morton Rd & Project Driveway

02/11/2021

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	40	0	9	67	0	5
Future Vol, veh/h	40	0	9	67	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	43	0	10	73	0	5

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	52	47	0	0	83
Stage 1	47	-	-	-	-
Stage 2	5	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	962	1028	-	-	1527
Stage 1	981	-	-	-	-
Stage 2	1023	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	962	1028	-	-	1527
Mov Cap-2 Maneuver	962	-	-	-	-
Stage 1	981	-	-	-	-
Stage 2	1023	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	962	1527
HCM Lane V/C Ratio	-	-	0.045	-
HCM Control Delay (s)	-	-	8.9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
4: Morton Rd & Wordsworth Rd N.

02/11/2021

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	2	2	104	14	0	64
Future Vol, veh/h	2	2	104	14	0	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	3	139	19	0	85

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	234	149	0	0	158
Stage 1	149	-	-	-	-
Stage 2	85	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	759	903	-	-	1434
Stage 1	884	-	-	-	-
Stage 2	943	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	759	903	-	-	1434
Mov Cap-2 Maneuver	759	-	-	-	-
Stage 1	884	-	-	-	-
Stage 2	943	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	825	1434
HCM Lane V/C Ratio	-	-	0.006	-
HCM Control Delay (s)	-	-	9.4	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th TWSC
5: Morton Rd & Wordsworth Rd S.

02/11/2021

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	40	1	103	43	0	71
Future Vol, veh/h	40	1	103	43	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	45	1	116	48	0	80

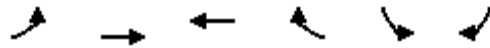
Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	220	140	0	0	164
Stage 1	140	-	-	-	-
Stage 2	80	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	773	913	-	-	1427
Stage 1	892	-	-	-	-
Stage 2	948	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	773	913	-	-	1427
Mov Cap-2 Maneuver	773	-	-	-	-
Stage 1	892	-	-	-	-
Stage 2	948	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	776	1427
HCM Lane V/C Ratio	-	-	0.059	-
HCM Control Delay (s)	-	-	9.9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 6th Signalized Intersection Summary
6: Box Springs Rd & Morton Rd

02/11/2021



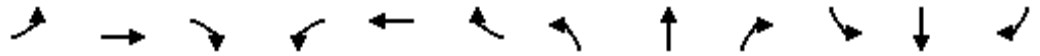
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗	↑↑	↑↑		↖	↖
Traffic Volume (veh/h)	135	792	610	58	63	71
Future Volume (veh/h)	135	792	610	58	63	71
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	141	825	635	60	66	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	177	2447	1786	169	422	533
Arrive On Green	0.10	0.68	0.54	0.54	0.23	0.23
Sat Flow, veh/h	1810	3705	3429	315	1810	1610
Grp Volume(v), veh/h	141	825	343	352	66	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1805	1843	1810	1610
Q Serve(g_s), s	6.9	8.6	9.8	9.8	2.6	2.9
Cycle Q Clear(g_c), s	6.9	8.6	9.8	9.8	2.6	2.9
Prop In Lane	1.00			0.17	1.00	1.00
Lane Grp Cap(c), veh/h	177	2447	967	988	422	533
V/C Ratio(X)	0.80	0.34	0.36	0.36	0.16	0.14
Avail Cap(c_a), veh/h	322	2447	967	988	422	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	6.1	12.0	12.0	27.5	21.1
Incr Delay (d2), s/veh	8.0	0.4	1.0	1.0	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	2.9	4.0	4.1	1.2	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.8	6.4	13.0	13.0	28.2	21.7
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		966	695		140	
Approach Delay, s/veh		12.5	13.0		24.8	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		65.0		25.0	12.8	52.2
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		61.0		21.0	16.0	41.0
Max Q Clear Time (g_c+I1), s		10.6		4.9	8.9	11.8
Green Ext Time (p_c), s		7.1		0.3	0.2	4.7
Intersection Summary						
HCM 6th Ctrl Delay			13.6			
HCM 6th LOS			B			

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

1: Sycamore Canyon Blvd & Fair Isle Dr

02/12/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕	↖	↖	↕	↖	↖	↕	↕
Traffic Volume (veh/h)	29	60	73	433	157	890	81	533	312	62	112	3
Future Volume (veh/h)	29	60	73	433	157	890	81	533	312	62	112	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	33	68	83	492	178	1011	92	606	355	70	127	3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	76	437	390	625	1969	878	117	679	859	227	348	8
Arrive On Green	0.04	0.24	0.24	0.35	0.55	0.55	0.06	0.19	0.19	0.06	0.19	0.19
Sat Flow, veh/h	1810	1805	1610	1810	3610	1610	1810	3610	1610	3510	1848	44
Grp Volume(v), veh/h	33	68	83	492	178	1011	92	606	355	70	0	130
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1755	0	1892
Q Serve(g_s), s	1.8	3.0	4.1	24.4	2.4	37.2	5.0	16.4	0.0	1.9	0.0	6.0
Cycle Q Clear(g_c), s	1.8	3.0	4.1	24.4	2.4	37.2	5.0	16.4	0.0	1.9	0.0	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	76	437	390	625	1969	878	117	679	859	227	0	356
V/C Ratio(X)	0.43	0.16	0.21	0.79	0.09	1.15	0.79	0.89	0.41	0.31	0.00	0.37
Avail Cap(c_a), veh/h	127	437	390	625	1969	878	127	679	859	246	0	356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.34	0.34	0.34	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.7	29.9	30.3	29.4	10.9	10.6	46.1	39.6	14.0	44.6	0.0	35.4
Incr Delay (d2), s/veh	3.9	0.8	1.2	2.4	0.0	73.1	25.5	16.5	1.5	0.8	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.4	1.7	10.7	0.9	28.9	3.1	8.7	4.9	0.8	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	30.6	31.5	31.8	10.9	83.6	71.6	56.1	15.4	45.4	0.0	38.3
LnGrp LOS	D	C	C	C	B	F	E	E	B	D	A	D
Approach Vol, veh/h		184			1681			1053			200	
Approach Delay, s/veh		34.6			60.8			43.7			40.8	
Approach LOS		C			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.5	28.2	10.5	22.8	8.2	58.5	10.5	22.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	34.0	24.2	7.0	18.8	7.0	51.2	7.0	18.8				
Max Q Clear Time (g_c+I1), s	26.4	6.1	7.0	8.0	3.8	39.2	3.9	18.4				
Green Ext Time (p_c), s	1.1	0.7	0.0	0.4	0.0	5.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay				52.2								
HCM 6th LOS				D								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

HCM 6th Signalized Intersection Summary

1: Sycamore Canyon Blvd & Fair Isle Dr

02/12/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗	↗	↗	↗	↗
Traffic Volume (veh/h)	14	81	104	227	185	232	119	313	575	322	421	32
Future Volume (veh/h)	14	81	104	227	185	232	119	313	575	322	421	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	15	84	108	236	193	242	124	326	599	335	439	33
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	44	441	394	312	1417	632	155	1043	743	408	558	42
Arrive On Green	0.02	0.24	0.24	0.29	0.66	0.66	0.09	0.29	0.29	0.12	0.32	0.32
Sat Flow, veh/h	1810	1805	1610	1810	3610	1610	1810	3610	1610	3510	1745	131
Grp Volume(v), veh/h	15	84	108	236	193	242	124	326	599	335	0	472
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1755	0	1876
Q Serve(g_s), s	0.7	3.3	4.9	10.7	1.8	6.2	6.1	6.4	8.6	8.4	0.0	20.6
Cycle Q Clear(g_c), s	0.7	3.3	4.9	10.7	1.8	6.2	6.1	6.4	8.6	8.4	0.0	20.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	44	441	394	312	1417	632	155	1043	743	408	0	600
V/C Ratio(X)	0.34	0.19	0.27	0.76	0.14	0.38	0.80	0.31	0.81	0.82	0.00	0.79
Avail Cap(c_a), veh/h	141	441	394	312	1417	632	181	1043	743	429	0	600
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	26.9	27.5	30.3	9.7	10.5	40.4	25.0	7.8	38.8	0.0	27.8
Incr Delay (d2), s/veh	4.5	1.0	1.7	8.9	0.2	1.5	19.3	0.8	9.1	11.5	0.0	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	2.0	4.8	0.7	2.1	3.5	2.8	6.0	4.2	0.0	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	27.9	29.3	39.2	9.9	12.0	59.7	25.8	17.0	50.4	0.0	37.9
LnGrp LOS	D	C	C	D	A	B	E	C	B	D	A	D
Approach Vol, veh/h		207			671			1049				807
Approach Delay, s/veh		30.0			21.0			24.8				43.1
Approach LOS		C			C			C				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.5	26.0	11.7	32.8	6.2	39.3	14.5	30.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	15.0	22.0	9.0	28.0	7.0	30.0	11.0	26.0				
Max Q Clear Time (g_c+I1), s	12.7	6.9	8.1	22.6	2.7	8.2	10.4	10.6				
Green Ext Time (p_c), s	0.2	0.9	0.0	1.4	0.0	2.0	0.1	4.1				
Intersection Summary												
HCM 6th Ctrl Delay				29.6								
HCM 6th LOS				C								

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Appendix L
Fire Hazard Analysis and Approach Memorandum

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
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TECHNICAL FIRE PROTECTION MEMORANDUM

To: Douglas Bloom, Fire Marshal, Moreno Valley Fire Department
From: Dudek Fire Protection Planning Team, Michael Huff, Director
Subject: Gateway Heights Project Fire Hazard Analysis and Approach
Date: 03/31/2022
cc: Jason Ackerman, Esq., Ackerman Law
Attachment(s): Figures 1-2
 Attachment 1 – Site Aerial Photograph
 Attachment 2 – Fuel Modification Plan
 Attachment 3 – Site Plan with Revised Dual Project Access

This Technical Fire Protection Memorandum documents fire protection planning related to project constraints analysis for the subject project. The approach outlined herein responds to your recommended direction during our recent communications regarding emergency ingress/egress to/from the project site and access to defensible space areas.

Project description

The proposed Gateway Heights development is a 108 unit detached townhouse project on an approximately 33-acre site in the City of Moreno Valley.

- “Detached townhouses” (townhouses by CBC definition are attached; structures are likely to be considered SFDs per code)
- Structures are separated 10’ apart.
- Structures are two-story townhouses
- Proposed 16-acre open space lot north of the developed project site

Existing Site Observations

Onsite

- Attachment 1 provides a site aerial photograph.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

- Vegetation is primarily scattered sage scrub, forbs, and scattered native shrubs and a few ornamental trees in the northeast corner;
- Unmaintained roads/trails traverse the property;
- Evidence of recent fuel reduction activities are present on site.

Topography

The project site is relatively flat, with a slight upslope gradient to the north; beyond the project to the north is a steep, rocky hillside with sparse scrub and forb vegetation. To the west and south the terrain has gently rolling hills with intermittent drainages. Along the eastern edge of the property is a drainage channel strewn with boulders. To the east of the project is a residential subdivision.

Vicinity

The project is located in the northeast area of the City of Moreno Valley. The western and northern property lines coincide with the city limits; the lands immediately to the west and north of the property are within unincorporated Riverside County.

- North: open space;
- East of northern open space lot: open space;
- Southeast of project site: residential development;
- West: open space.

Proposed site plan review / code compliance issues

Issues to address:

- Driveway lengths: proposed lengths range from 136 to 273 feet with 24' width. The driveways for Pads 1, 3, 4, 6 and 8 are less than 150 feet long and would thereby qualify as fire apparatus access roads. The driveways for Pads 2, 5, 7 and 9 through 13 are greater than 150 feet long and would not qualify as fire apparatus access roads since no turnarounds are proposed.
- Fuel modification width: 100-foot FMZ can be provided for most units (Attachment 2). The western most units on Pad 13 (NW corner) are 30 feet from the property line; the units on Pad 7 are 69 feet from the property line; obtaining an off-site FMZ easement would be one approach to resolving this potential issue. However, if an off-site FMZ easement is not feasible due to an unwilling neighboring property owner; then onsite "hardening" features may be required as an alternative method of fire protection (i.e., firewalls on the property line).

Primary access

Primary access is proposed using Morton Road on the southern side of the project, which has access to Box Springs Road and the SR60/I-215 Freeway.

Secondary access

In reviewing the Moreno Valley Fire Code, there is no reference identified whereby a secondary access is required for the project. CFC 503.1.2 authorizes the fire code official to require more than one access road based on the potential for impairment of a single road, but it does not require that an additional access road must be provided.

The project design provides two 36' foot wide roadways at the entrance to minimize any potential traffic congestion during an emergency setting; one for ingress and one for egress (see Attachment 3). Each entrance roadway connects to separate "legs" of the internal circulation loop road allowing for approximately half of the occupants to exit in each of two distinct directions without conflict.

Internal circulation

- Loop road system;
- Direct access is provided to all structures;
- Unobstructed internal circulation loop roadway width of 24 feet;
- No dead-end fire apparatus access roads.

Fuel modification and Vegetation Management

A fuel modification landscape plan has been prepared and submitted for review and approval.

The two "legs" of the internal circulation loop road, along the eastern and western edges of the project, will be located between the property line and structures providing a paved, non-combustible, defensible space as part of the fuel modification zone.

The project will also comply with the following requirements related to fuel modification and vegetation management outlined in the 2022 California Fire Code. The Project-provided fuel modification landscape plan provides additional details on the Project's consistency with these requirements and has been submitted for review to Moreno Valley Fire Department.

4906.1 General

Planting of vegetation for new landscaping shall be selected to reduce non-fire-resistant vegetation in proximity to a structure and to maintain vegetation as it matures.

4906.2 Application

All new plantings of vegetation in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA) designated as a Very High Fire Hazard Severity Zone shall comply with Sections 4906.3 through 4906.5.3.

4906.3 Landscape Plans

Landscape plans shall be provided when required by the enforcing agency. The landscape plan shall include development and maintenance requirements for the vegetation management zone adjacent to structures and roadways, and to provide significant fire hazard reduction benefits for public and firefighting safety.

4906.3.1 Contents

Landscape plans shall contain the following:

1. Delineation of the 30-foot (9144 mm) and 100-foot (30.5 m) fuel management zones from all structures.
2. Identification of existing vegetation to remain and proposed new vegetation.
3. Identification of irrigated areas.
4. A plant legend with both botanical and common names, and identification of all plant material symbols.
5. Identification of ground coverings within the 30-foot (9144 mm) zone.

4906.4 Vegetation

All new vegetation shall be fire-resistant vegetation in accordance with this section.

Exception: Trees classified as non-fire-resistant vegetation complying with Section 4906.4.2.1.

To be considered fire-resistant vegetation, it must meet at least one of the following:

1. Be identified as fire-resistant vegetation in an approved book, journal or listing from an approved organization.
2. Be identified as fire-resistant vegetation by a licensed landscape architect with supporting justification.
3. Plants considered fire-resistant vegetation and approved by the local enforcing agency.

4906.4.1 Shrubs

All new plantings of shrubs shall comply with the following:

1. Shrubs shall not exceed 6 feet (1829 mm) in height.
2. Groupings of shrubs are limited to a maximum aggregate diameter of 10 feet (3048 mm).
3. Shrub groupings shall be separated from other groupings a minimum of 15 feet (4572 mm).
4. Shrub groupings shall be separated from structures a minimum of 30 feet (9144 mm).
5. Where shrubs are located below or within a tree's drip line, the lowest tree branch shall be a minimum of three times the height of the understory shrubs or 10 feet (3048 mm), whichever is greater.

4906.4.2 Trees

Trees shall be managed as follows within the 30-foot (9144 mm) zone of a structure:

1. New trees shall be planted and maintained so that the tree's drip line at maturity is a minimum of 10 feet (3048 mm) from any combustible structure.
2. The horizontal distance between crowns of new trees and crowns of adjacent trees shall not be less than 10 feet (3048 mm).
3. Existing trees shall be trimmed to provide a minimum separation of 10 feet (3048 mm) away from chimney and stovepipe outlets per Title 14, Section 1299.03.

4906.4.2.1 Non-Fire-Resistant Vegetation

New trees not classified as fire-resistant vegetation, such as conifers, palms, pepper trees and eucalyptus species, shall be permitted provided the tree is planted and maintained so that the tree's drip line at maturity is a minimum 30 feet (9144 mm) from any combustible structure.

Defensible Space

The project will comply with the following defensible space requirements outlined in the 2022 California Fire Code.

4907.1 General

Hazardous vegetation and fuels shall be managed to reduce the severity of potential exterior wildfire exposure to buildings and to reduce the risk of fire spreading to buildings as required by applicable laws and regulations. Defensible space will be managed around all buildings and structures in State Responsibility Areas (SRA) as required in Public Resources Code 4291.

4907.2 Application

Buildings and structures located in the following areas shall maintain the required hazardous vegetation and fuel management:

1. All unincorporated lands designated by the State Board of Forestry and Fire Protection as a State Responsibility Area (SRA).
2. Land designated as a Very High Fire Hazard Severity Zone by the Director.
3. Land designated in ordinance by local agencies as a Very High Fire Hazard Severity Zone pursuant to Government Code Section 51179.

4907.3 Requirements

Hazardous vegetation and fuels around all buildings and structures shall be maintained in accordance with the following laws and regulations:

1. Public Resources Code, Section 4291.
2. California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 3, Article 3, Section 1299.03.
3. California Government Code, Section 51182.
4. California Code of Regulations, Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07.

Relevant code sections:

California Residential Code R337. Materials and Construction Methods for Exterior Wildfire Exposure: minimum standards for a new building located in a WUI area to resist the intrusion of flame or burning embers projected by a vegetation fire.

California Fire Code 503.1.2 Additional access. Authorizes the fire code official to require more than one access road based on the potential for impairment of a single road, but it does not require that an additional access road must be provided.

Moreno Valley Fire Code Amendments

- 503.2.1 Fire apparatus access roads – 24 feet wide
- 903.2 Single Family Dwellings shall have automatic fire sprinkler systems
- 4906.4 Fuel Modification Requirements for New Construction. Must meet the criteria established by Riverside County Fire Department (Information Bulletin #08-05). Submit a Fuel Modification Plan; indicate setback, irrigated and thinning zones (30' Green Zone; 100' total defensible space).
- App B. Fire Flow and Hydrant Spacing

Fire environment assessment

The project site's fire environment assessment was performed by Dudek fire protection planners with extensive similar experience throughout California over the last 25 years.

- The site is located within a Very High Fire Hazard Severity Zone.
- No evidence of recent fire on site; fire history data indicates the site has had multiple fires within a five-mile radius and the site itself has burned four times since 1980.
- Vegetation on site and to the north, west and south is sparse and low growing, which would reduce the impacts from a wildland fire;
- Adjacent hillslopes to the north exist up and away from the project site. This reduces wildfire risks at the project site as wildfire is more likely to spread at slower rates when moving downslope compared to an upslope direction.
- The project may be subject to an approaching wildland fire from the northeast during Santa Ana wind conditions. While direct impacts from wildfire cannot be completely ruled out, structural ignition risks from ember cast are minimal given modern construction requirements in alignment with Chapter 7A of the California Building Code, per California Office of the State Fire Marshals Office data.

Fire Behavior assessment

- Selected fuel models Sh1 (low load, dry climate shrub) and Sh2 (moderate load, dry climate shrub) to represent the existing vegetative fuels. Site photographs provided in Attachment 4 depicts the fuels present on and adjacent to the project site.

- Selected wildland fire run scenarios from the NE and SW representing an offshore Santa Ana wind event and an onshore wind event. Santa Ana wind events represent “worst-case” conditions and represent the highest wind speeds and lowest fuel moistures likely to occur at the project site.
- Conducted fire behavior modeling using the BehavePlus 6 modeling system for existing conditions and post-development fuel modification (see results in Table 1). The location of model runs is provided in Figure 1.

Table 1. Fire Behavior Modeling Results

Fire Scenarios	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
Scenario 1: 15% slope, 40 mph NE wind				
Fuel Model Sh1 (scrub/mustard)	8.4	584	1.0	0.7
Fuel Model Sh2 (scrub/mustard)	14.1	1,781	0.8	0.9
Scenario 1 Fuel Mod: 10% slope, 40 mph NE wind				
Fuel Model 8 (irrigated landscaping)	2.6	46	0.1	0.3
Scenario 2: 15% slope, 20 mph SW wind				
Fuel Model Sh1 (scrub/mustard)	8.5	589	1.0	0.7
Fuel Model Sh2 (scrub/mustard)	14.1	1,796	0.8	0.9
Scenario 2 Fuel Mod: 15% slope, 20 mph SW wind				
Fuel Model 8 (irrigated landscaping)	2.6	46	0.1	0.3

- An additional assessment was conducted to determine fire behavior during a Santa Ana wind event (worst-case weather conditions) in areas adjacent to the project site using the FlamMap software package. Direct impacts from wildfire are not likely at the project site due to flame lengths less than 20 feet in adjacent lands and the planned Fuel Modification Zones.

The following paragraphs provide descriptions of the inputs used in processing the FlamMap model. In addition, data sources are cited, and any assumptions made during the modeling process are described. A graphical representation of the model results is provided in Figure 2

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Elevation

The elevation data file represents units of meters above mean sea level (AMSL). Elevations in the FlamMap analysis area range from 1,585 to 2,625 feet AMSL. Elevation data is a required input file for FlamMap runs and are necessary for adiabatic adjustment of temperature and humidity and for conversion of fire spread between horizontal and slope distances.

Slope

The slope data file represents values in degrees of inclination from horizontal. Slope values in the FlamMap analysis area range from 0–32 degrees. The slope input file is necessary for computing slope effects on fire spread and solar radiance.

Aspect

The aspect data file represents values in azimuth degrees. Aspect values are important in determining the solar exposure of grid cells.

Wind and Fuel Moisture

Wind speed and fuel moisture values for the FlamMap analysis utilized the same values as those used in the BehavePlus runs for Santa Ana weather scenarios. Fuel moisture data was collected from local RAWS stations. Wind alignment was set at 70 degrees, and wind speed was set to 40 mph.

Fuel Model

The fuel model data file was based on the 40 Scott and Burgan (2005) models and represents distinct distributions of fuel loading found among surface fuel components (live and dead), size classes, and fuel types.

Recommendations / AM&M Justification

The Project includes the need for alternative materials and methods for FMZ and dead-end road length. This Fire Protection Technical Report proposes the following approach (AM&Ms) and justification. The AM&M's are evaluated to provide at least equivalent protection based on the experience of the preparers of this report.

1. Site fire environment and fire behavior is not significant. The vegetation on site and on adjacent lands is sparse – dried mustard and scattered sage. The ridge behind the project site slopes up and away from project, is covered with sparse light vegetation and rocks, which is beneficial.
2. Structures must be constructed in accordance with CRC R337 building codes (within FHSZ) and will include features such as ember resistant vents (baffled not just mesh).
3. FMZ will be provided around entire perimeter of the project site (see Fuel Modification Plan – Attachment 2). (Where the FMZ and Jurisdictional Delineation area overlaps along the upper portion of the

southeastern property line, active fuel treatment will be conducted so as to avoid impacts. The channel is comprised of large boulders with limited vegetation and in its existing state acts as a fuel modification area.) The Project will be hardened throughout.

- a. The Project shall attempt to obtain an interim off-site FMZ easement for Pads 7 and 13 so that a total of 100 feet of FMZ from the Project's structures can be achieved. The off-site FMZ would be limited to thinning/mowing of existing vegetation annually. Should the off-site easement be infeasible based on an unwilling neighbor, then alternative fire protection is proposed:

- i. Wherever less than 100 feet of FMZ (on and off site combined) is achievable, a 6 foot tall, masonry wall will be constructed at the property line in lieu of the additional FMZ.

Wall Justification: When buildings are set back from slopes, and a wall is placed at the property line, flames and radiant heat are deflected vertically reducing the effects of heat on the structure. If a structure cannot be setback adequately, or where the slope is less than 30%, a noncombustible wall can help deflect the flames from the structure (NFPA 2005). The duration of radiant heat impact on the exposed side of the house is also reduced. The structure setback is important to avoid heat and/or flame intersection with the structure.

Heat-deflecting landscape walls of masonry construction that are six feet in height will be incorporated at the edge of lots where FMZs are the most constrained (Pads 7 and 13). The landscape walls provide a vertical, non-combustible surface in the line of heat, fumes, and flame. Once these fire byproducts intersect the wall, they are deflected upward or, in the case where lighter fuels are encountered, they are quickly consumed, heat and flame are absorbed or deflected by the wall, and the fuels burn peaks out within a short (30 second – 2 minute) time frame (Quarles and Beall 2002). Walls like these have been observed to deflect heat and airborne embers on numerous wildfires in San Diego, Orange, Los Angeles, Ventura, and Santa Barbara County.

Rancho Santa Fe Fire Protection District, Laguna Beach Fire Department, Orange County Fire Authority, Murietta Fire Protection District, and others utilize these walls as alternative methods based on observed performance during wildfires. This has led to these agencies approving use of non-combustible landscape walls as mitigations for reduced fuel modification zones and reduced setbacks at top of slope. While fuel moistures vary slightly across these jurisdictions, Santa Ana wind events create similar fuel moistures across a broad geographical area due to intensive drying of fuels. Therefore, this mitigation is also justified within the Moreno Valley Fire Protection District. These walls are consistent with NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire – 2008 Edition, Section 5.1.3.3 and A.5.1.3.3 and International Urban Wildland Interface Code (ICC 2012). NFPA 1144, A.5.1.3.3 states: "Noncombustible walls and barriers are effective for deflecting radiant heat and windblown embers from structures." These walls and barriers are usually constructed of noncombustible materials (concrete block, bricks, stone, stucco) or earth where 30 feet (9 meters) of defensible space is not available.

4. Provide FMZ inspections annually. Inspections will be performed by RCFD or, at their preference, the Project would fund inspections by a 3rd party to their satisfaction. This measure will ensure that the FMZ is functioning as intended.
5. Identify and mark fire lane and/or no parking areas as required.
6. Provide enlarged turns at both internal loop roadway turns.
7. Dual pane (both panes) tempered glass for openings on exposed sides of the structures on Pads 7 and 13.
8. Loop internal road system with two 36-foot wide, multi-lane, physically-separated ingress/egress roadways.
9. Hardening at Project access point via pavement and landscaping.
10. Fire access points at the terminus of each driveway along the north side of Project for firefighting. Additionally, the area behind the northeast side of the project includes a 10-to-12-foot flat area that will be available to pedestrian firefighters via the provided accesses at the end of each driveway in that area.

Summary

The structures will be constructed following CRC R337 requirements to ensure reduced ignition potential. In addition, hardening of the structures including enhanced vents and enhanced glazing requirements will be included on selected units as noted above.

The internal circulation provides the necessary access to all structures with no dead-end fire apparatus access roads that require fire department turnarounds. The minimum roadway width of 36 feet meets the requirements for buildings less than 30 feet in height. Hydrants will need to be installed within the project site.

The primary access off Morton Road has been enhanced to include two 36' wide physically separated roadways for ingress and egress to reduce traffic congestion during emergencies, by providing dedicated ingress and egress routes.

Figures 1-2

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Table 1. Fire Behavior Modeling Results

Fire Scenarios	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
Scenario 1: 15% slope, 40 mph NE wind				
Fuel Model Sh1 (scrub/mustard)	8.4	584	1.0	0.7
Fuel Model Sh2 (scrub/mustard)	14.1	1,781	0.8	0.9
Scenario 1 Fuel Mod: 10% slope, 40 mph NE wind				
Fuel Model 8 (irrigated landscaping)	2.6	46	0.1	0.3
Scenario 2: 15% slope, 20 mph SW wind				
Fuel Model Sh1 (scrub/mustard)	8.5	589	1.0	0.7
Fuel Model Sh2 (scrub/mustard)	14.1	1,796	0.8	0.9
Scenario 2 Fuel Mod: 15% slope, 20 mph SW wind				
Fuel Model 8 (irrigated landscaping)	2.6	46	0.1	0.3

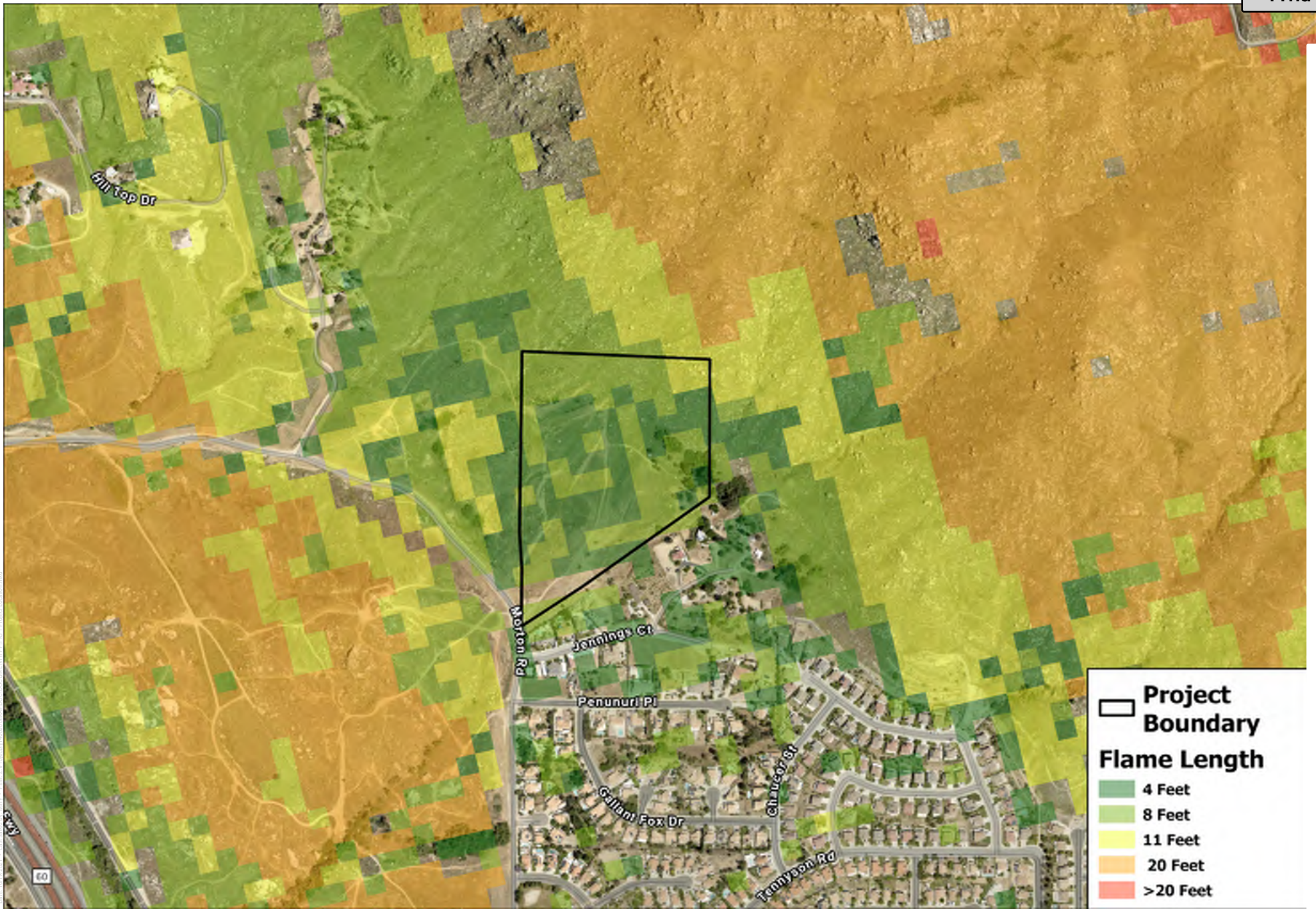


Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

SOURCE: AERIAL- BING MAPPING SERVICE; DEVELOPMENT- EDWIN SAMLIN 2021



FIGURE 1
BehavePlus Analysis Map
Fire Protection Plan for the Gateway Heights Project



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

FIGURE 2
Flame Lengths
(Santa Ana Wind Event)

Attachment 1

Site Aerial Photograph

Attachment: Appendicies H-L (6434 : Gateway Heights Tract 38459)

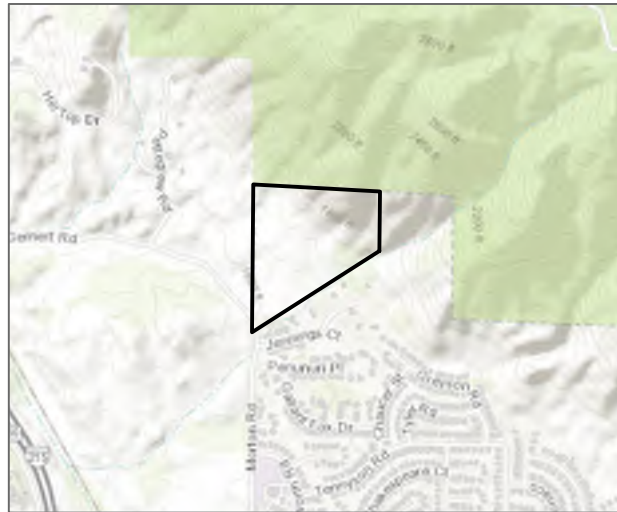


Aerial view of Project site. Land cover on site is disturbed, grassland, with minimal shrubs. Slopes to the north/northeast are sparsely vegetated with heavy rock outcrop ground cover. East/southeast includes large property single family homes. Land to the west is vacant and planned for development. Morton Road is directly to the west/southwest.

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Attachment 2 Fuel Modification Plan

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)



- Project Boundary
- 30-Ft FMZ
- 100-Ft FMZ
- Fire Access Points
- FMZ DIMS
- Land Use**
- P-BUILDING ENVELOP
- P-DEVELOPMENT
- P-ROADWAY
- P-DRIVEWAY
- P-PARK
- P-SLOPES
- P-BASIN
- P-BENCH
- P-STORM DRAIN SYSTEM



SOURCE: AERIAL- RIVERSIDE COUNTY 2019



Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

Attachment 3 Revised Site Plan Including Two Separate Ingress/Egress Roads

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

LEGAL DESCRIPTION:

THAT PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY; THENCE RUNNING SOUTH ALONG THE WEST LINE OF SAID SECTION 34, 23.50 CHAINS TO THE CORNER MONUMENT MARKING THE NORTHWEST CORNER OF THE LAND CONVEYED TO CECIL R. G. WEBBE TO CHARLES M. DEXTER BY DEED RECORDED IN BOOK 141, PAGE 398, OF DEEDS, SAN BERNARDINO COUNTY RECORDS;

EXCEPTING THEREFROM ANY INTEREST OF THE COUNTY OF RIVERSIDE IN AND TO THAT PORTION LYING WITHIN MORTON ROAD.

ALSO EXCEPTING THEREFROM THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING SOUTHWESTERLY OF SAID MORTON ROAD.

PARCEL NUMBER(S): 256-150-001

UTILITY PURVEYORS:

WATER EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777

SEWER EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777

ELECTRIC SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA. 92374 (800) 655-4555

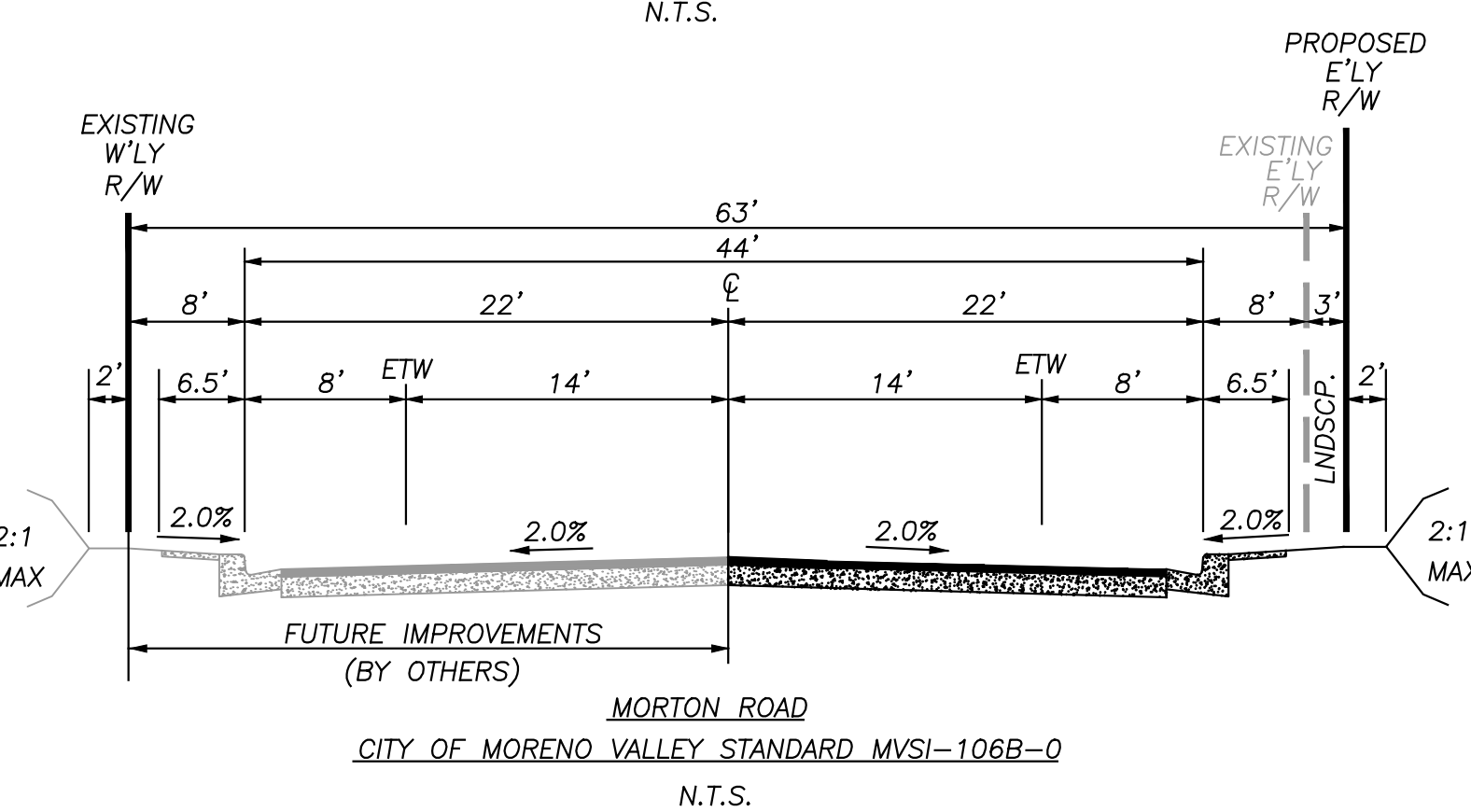
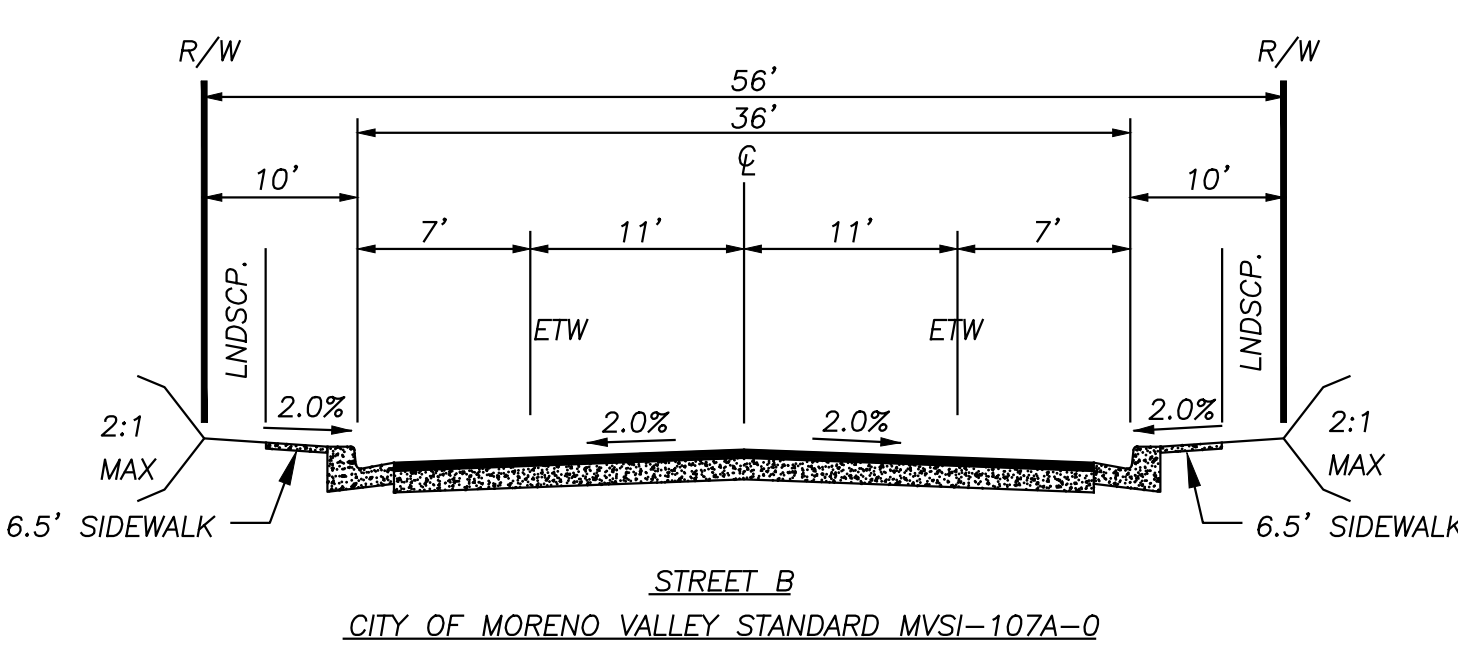
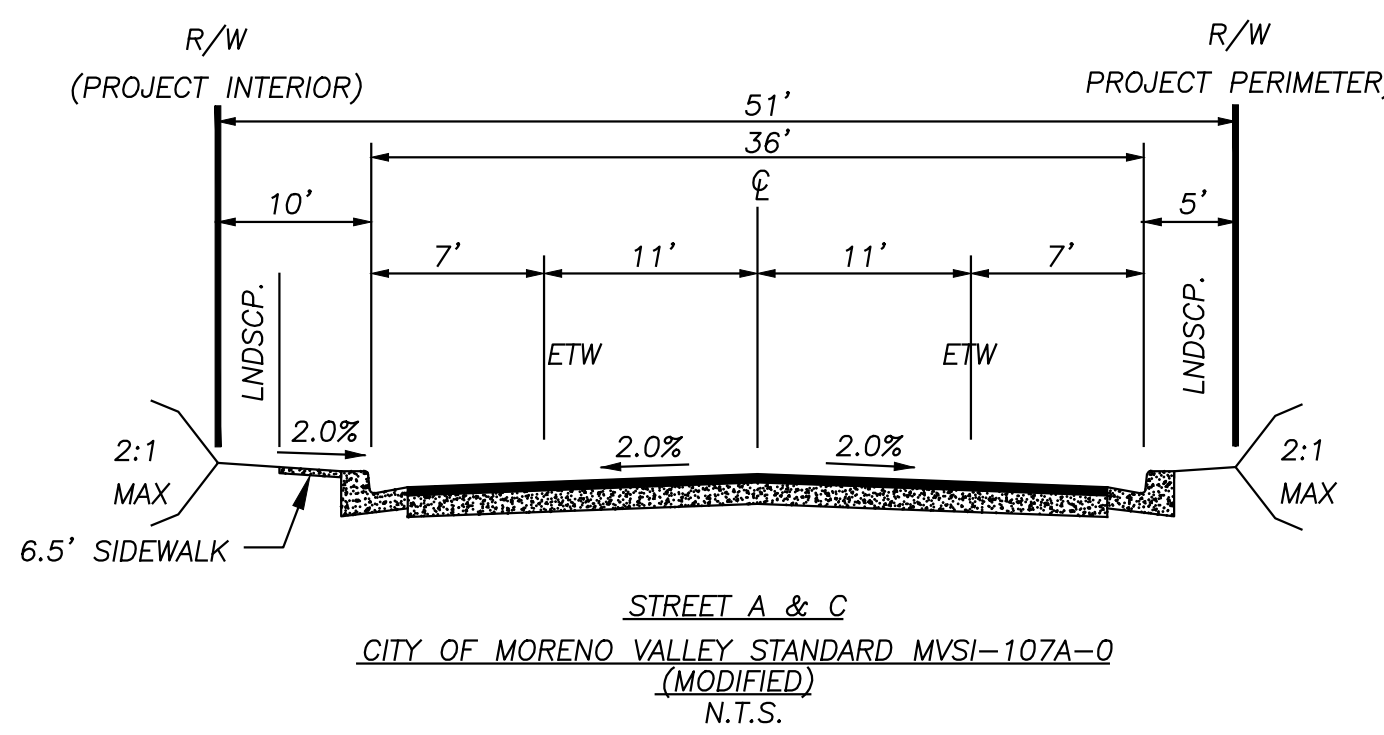
GAS SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA. 92507 (213) 244-8344

TELEPHONE SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389

CABLE SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389

LEGEND

- FF FINISHED FLOOR
FL FLOW LINE
R/W RIGHT-OF-WAY
PROPOSED SEWER LINE
PROPOSED WATER LINE
EXISTING SEWER LINE
EXISTING WATER LINE
DEVELOPMENT LIMITS
PROJECT BOUNDARY
CENTERLINE
EXISTING DIRT ROAD
POWER POLE
OVERHEAD POWER LINE
FUEL MODIFICATION ZONE

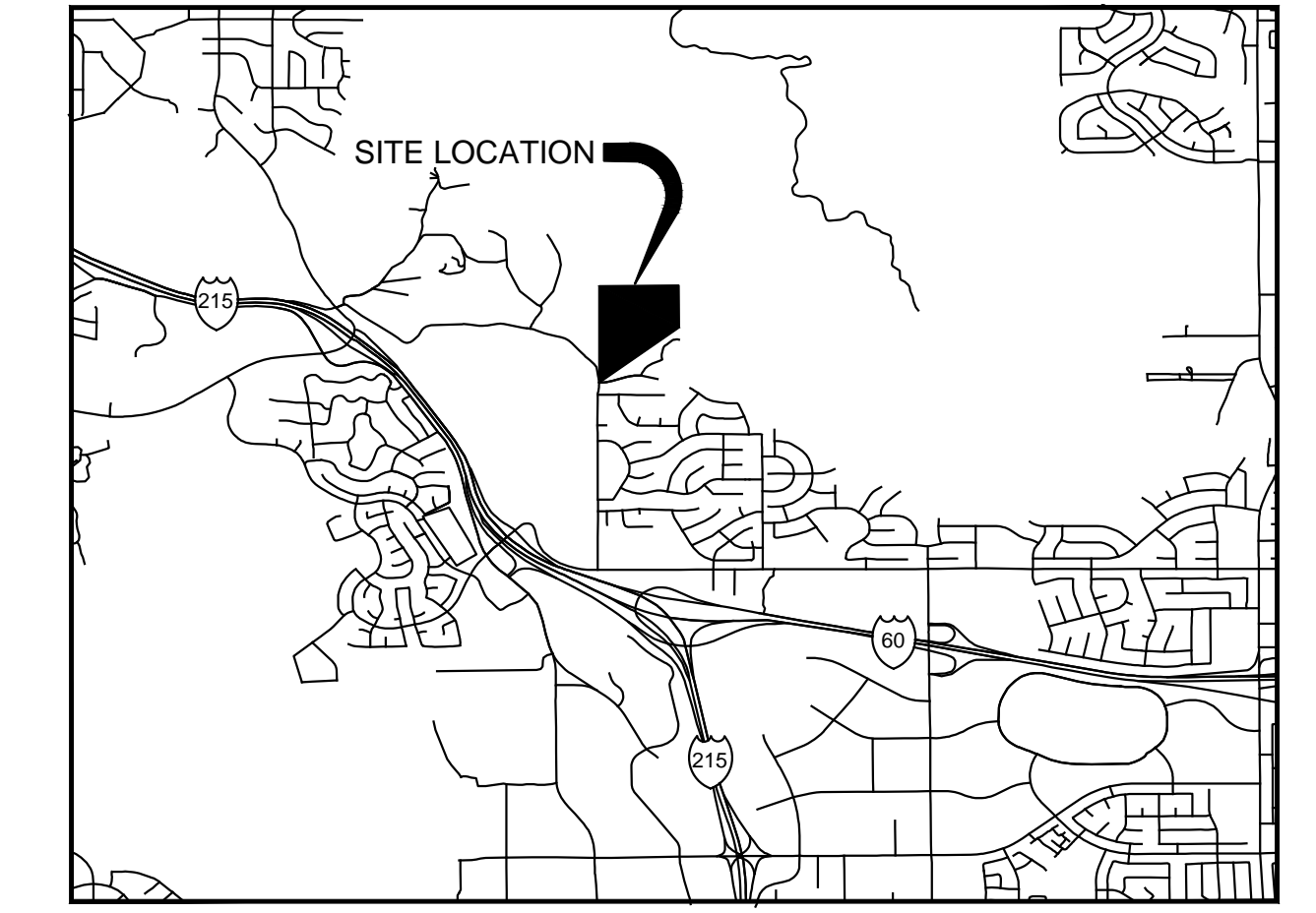


IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

SITE PLAN

BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN

UNITED ENGINEERING GROUP CA., INC NOVEMBER 2021



VICINITY MAP N.T.S.

GENERAL NOTES:

- 1. APN: 256-150-001
2. TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL-1FT.
3. THE LAND DOES NOT LIE WITHIN AN ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
4. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
5. THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
6. THIS AREA IS NOT WITHIN FAULT ZONE.
7. BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
8. PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
9. HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, AND FUEL MODIFICATION AREAS.
10. PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
11. ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
12. TO THE BEST OF OUR KNOWLEDGE, MORTON ROAD NORTHERLY OF JENNINGS COURT HAS NOT BEEN VACATED FROM THE CURVE ALIGNMENT THAT IS RECORDED ON PM27548.

SITE DATA

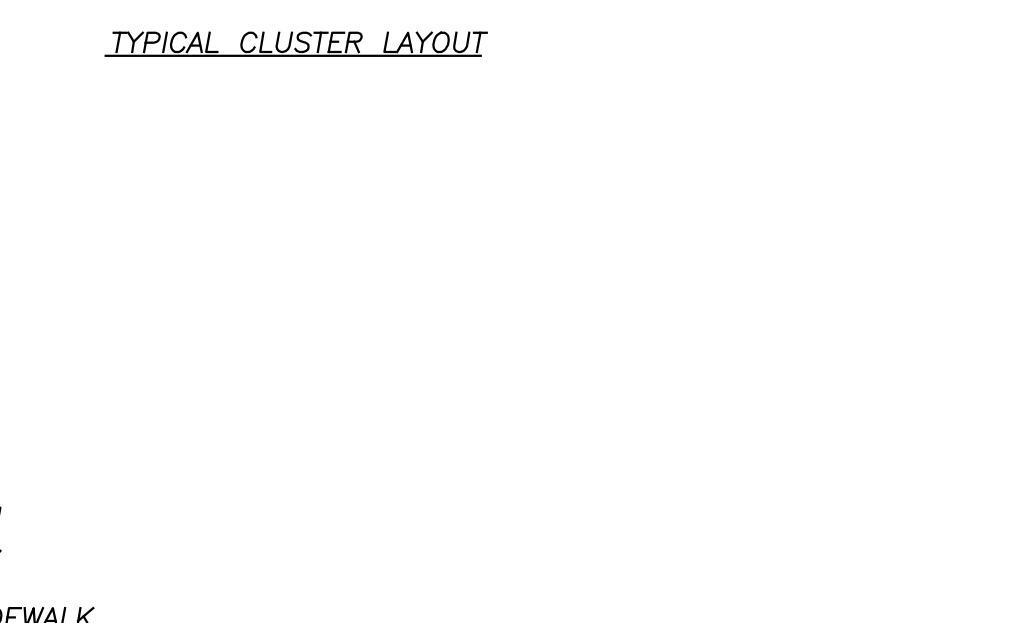
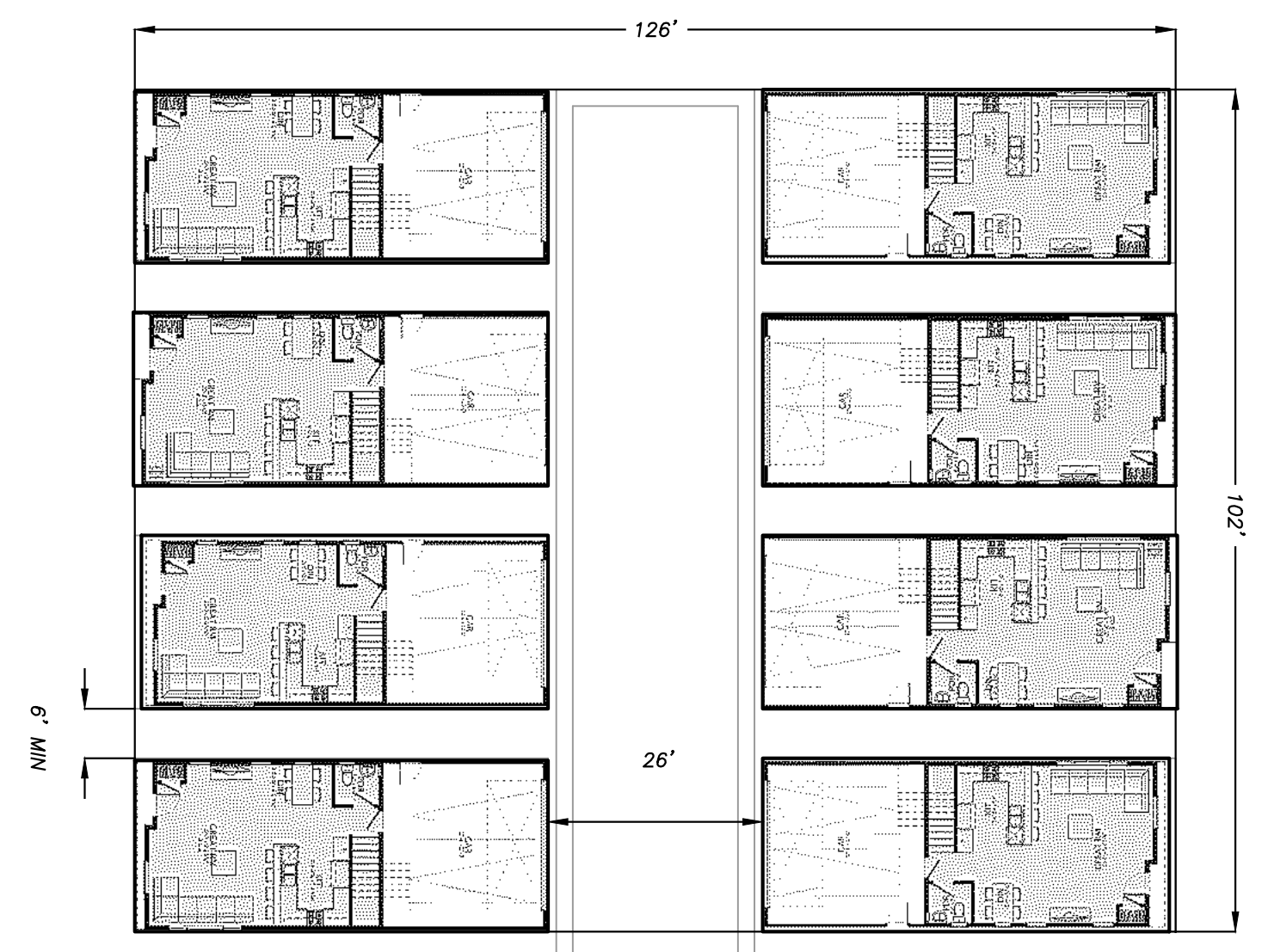
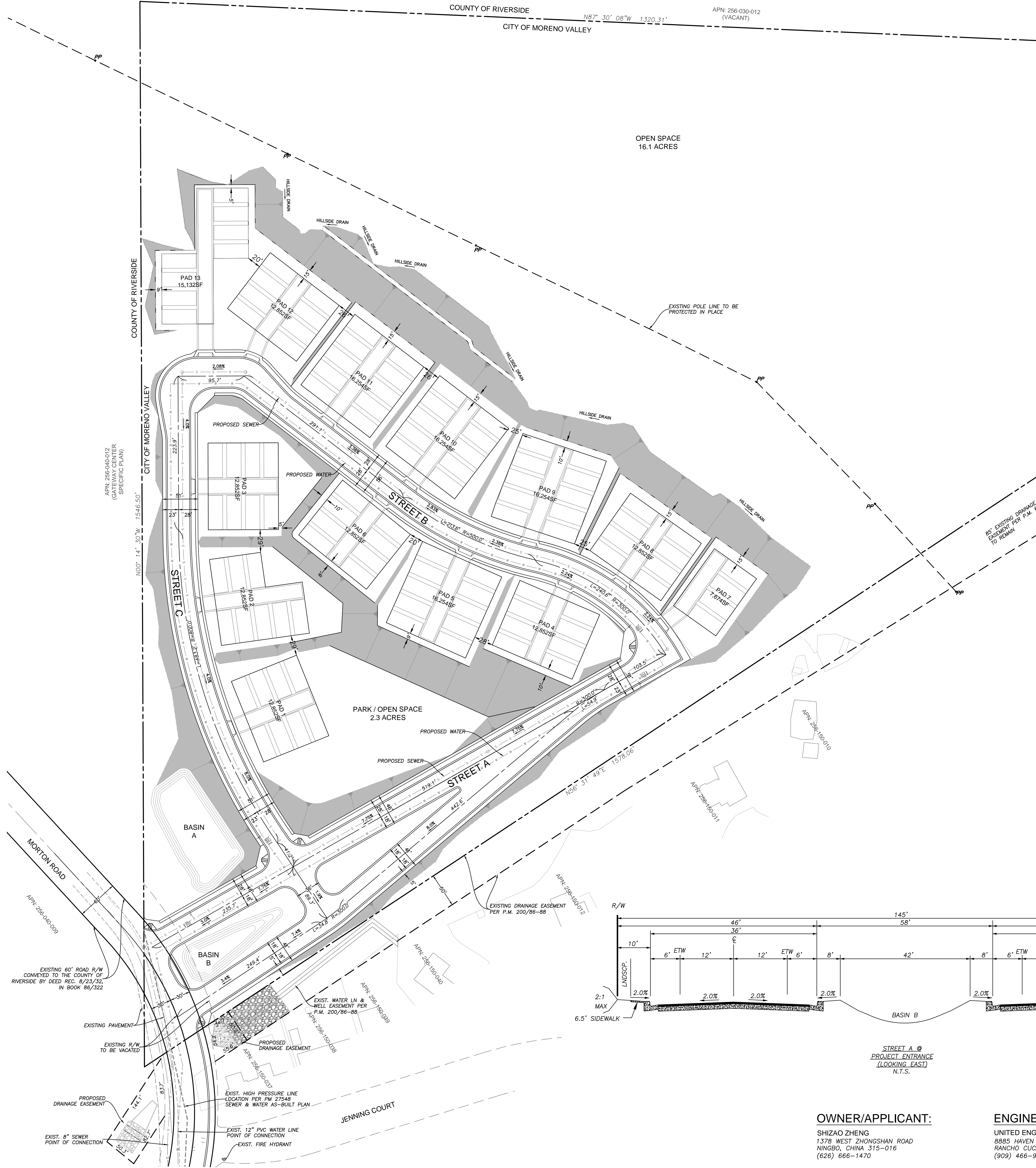
Table with 2 columns: Category and Value. Includes: TOTAL GROSS AREA (32.70 ACRES), TOTAL NET AREA (32.70 ACRES), PROPOSED RS10 ZONE (16.60 ACRES), DEVELOPMENT AREA (16.60 ACRES), UNITS 1 - 108 (2,100 S.F./EACH), PARKING SPACES (216), PARK AREA (0.89 ACRES), BASIN A (13,852.37 S.F.), BASIN B (12,131.24 S.F.), STREET A, B, & C (2,447.60 L.F.).

PROJECT LAND USE

EXISTING LAND USE: VACANT
PROPOSED LAND USE: RESIDENTIAL
EXISTING ZONING: R2 AND HR
PROPOSED ZONING: RS10 AND OS

SURROUNDING LAND USE

NORTH: HILLSIDE RESIDENTIAL (HR) & CONSERVATION (COUNTY OF RIVERSIDE)
RESIDENTIAL MAX SQU/ACRE (RS)
SOUTH: HILLSIDE RESIDENTIAL (HR)
EAST: HILLSIDE RESIDENTIAL (HR)
WEST: GATEWAY CENTER SPECIFIC PLAN (COUNTY OF RIVERSIDE)



SHEET INDEX:

SHEET 1: SITE PLAN
SHEET 2: CONCEPTUAL GRADING PLAN

OWNER/APPLICANT:

SHIZAO ZHENG
1378 WEST ZHONGSHAN ROAD
NINGBO, CHINA 315-016
(626) 666-1470

ENGINEER

UNITED ENGINEERING GROUP CA, INC
8885 HAVEN AVENUE, SUITE 195
RANCHO CUCAMONGA, CA 91730
(909) 466-9240

Table with columns: SUBMITTALS, NO., DESCRIPTION, DATE. Includes entries for DESIGNER, CHECKED BY, and REVISIONS.

Professional Engineer Seal for Christopher F. Lenz, State of California, License No. 63001, Exp. 6/30/23.

Professional Land Surveyor Seal for Dean C. Phillips, State of California, License No. 6974, Exp. 9/30/21.



8885 Haven Avenue Suite 195 Rancho Cucamonga, CA 91730 Phone: 909.466.9240 www.unitedeng.com

SITE PLAN GATEWAY HEIGHTS CONDITIONAL USE PERMIT NOVEMBER 2021 SHEET 1 OF 2 PROJECT NUMBER CA-30182

Attachment 4 Site Photographs

Attachment: Appendices H-L (6434 : Gateway Heights Tract 38459)

ATTACHMENT 4 - SITE PHOTOGRAPHS



Photograph 1: Photograph taken from Morton Road looking northeast at the project site showing on and off-site fuels and adjacent hillslopes that exists up and away from the project site. Rock outcroppings covering the hillslope reduce wildfire hazard by taking away burnable fuels.



Photograph 2: Photograph taken from the western edge of the project site looking east. On-site fuels are low load and comprised of short shrubs and annual grasses.



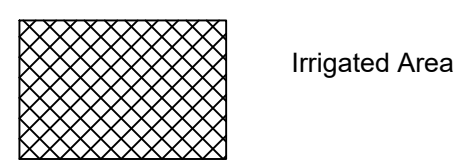
Photograph 3: Photograph taken from the northern boundary of the project site looking west picturing adjacent shrub and grass fuels and electrical transmission line. Spacing between vegetation decreases wildfire spread.



Photograph 4: Photograph taken from northeastern boundary of project site showing shrub and grass fuels in addition to adjacent trees and rock outcroppings. Fuel loads are highest along the project site's northern boundary.

COUNTY OF RIVERSIDE CALIFORNIA FRIENDLY PLANT LIST

Table with columns: Botanical, Common, Wooded Region #, Sunset Zones, Mature Height (feet), Mature Width (feet), Fire Retardant / Slope, and IRRIGATED ADJACENT. Lists various plants like Strawberry Tree, Guadalupe Palm, St. John's Bread, etc.



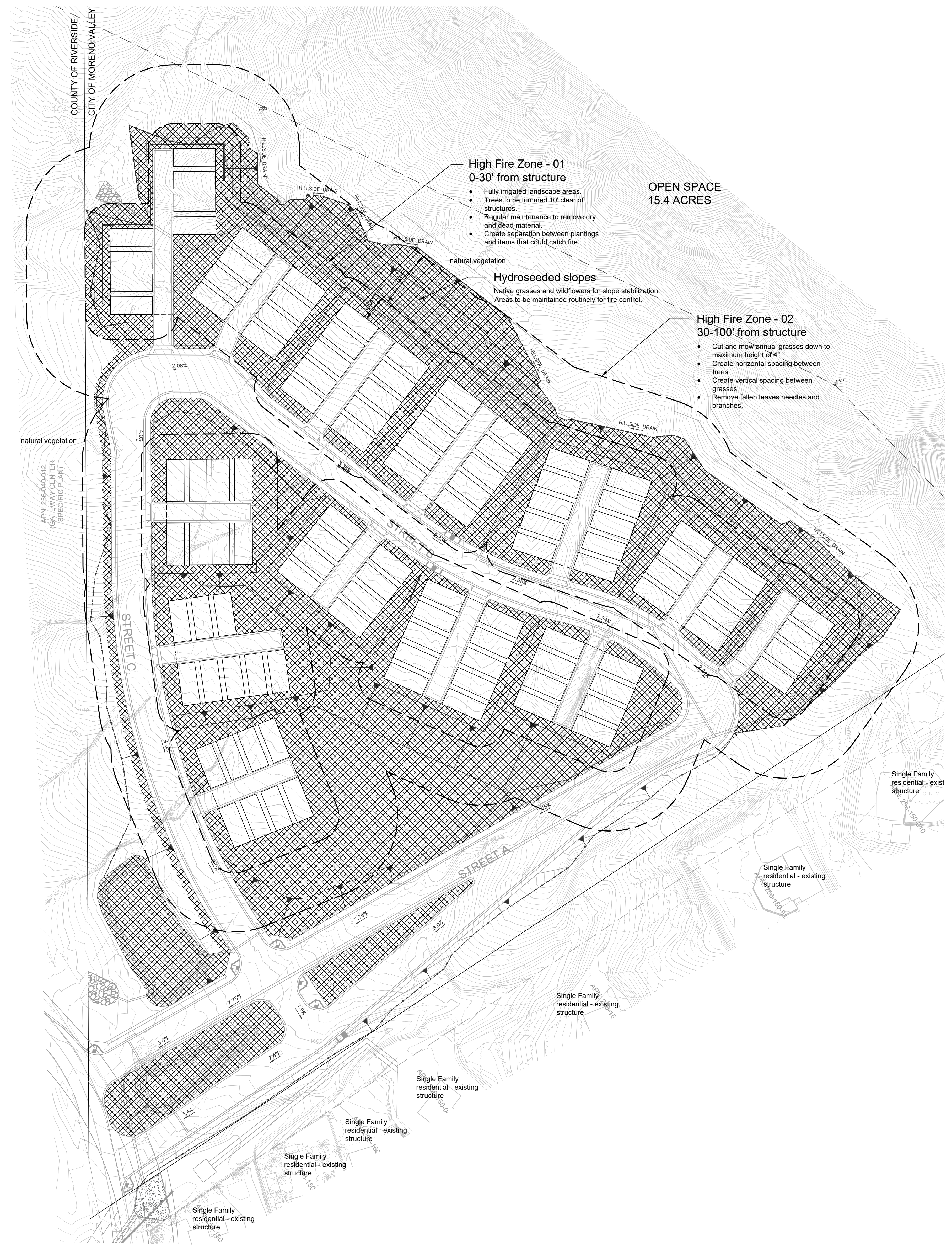
Irrigated Area

TOTAL PROJECT AREA: 32.8 acres.

Plants to be chosen from County of Riverside California Friendly Plant List and approved by the Fire Department.

Plant list table with columns: Botanical, Common, Height, Width, and IRRIGATED ADJACENT. Includes plants like Purple Sage, Jojoba, Desert Mallow, etc.

*Varieties have been found to vary in flammability than the species.



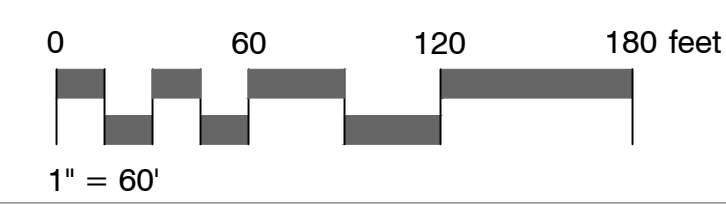
High Fire Zone - 01 0-30' from structure
Fully irrigated landscape areas.
Trees to be trimmed 10' clear of structures.
Regular maintenance to remove dry and dead material.
Create separation between plantings and items that could catch fire.

Hydroseeded slopes
Native grasses and wildflowers for slope stabilization.
Areas to be maintained routinely for fire control.

High Fire Zone - 02 30-100' from structure
Cut and mow annual grasses down to maximum height of 4".
Create horizontal spacing between trees.
Create vertical spacing between grasses.
Remove fallen leaves needles and branches.

OPEN SPACE 15.4 ACRES

NOTE: This information is conceptual in nature and is subject to adjustments pending further verification and Client and Governmental Agency approval. No warranties or guarantees are given or implied by the Architect.



PRELIMINARY FIRE PROTECTION PLAN
GATEWAY HEIGHTS
MORENO VALLEY, CA

WOOD ARCHITECTURE logo and contact information: Project: 22070_WA, Date: 11.07.2022, Scale: 1" = 60', www.iwoodarchitecture.com



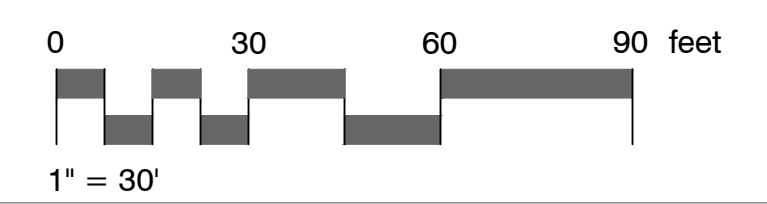
Sample Plant Palette

TREES	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	USE	WUCOLS	STYLE	CA NATIVE
	<i>Arbutus unedo</i>	Strawberry Tree	15 gal	Evergreen	Accent Tree	Low	Standard	No
	<i>Cercis occidentalis</i>	Western Redbud Multi-trunk	15 gal	Deciduous	Accent Tree	Low	Standard	Yes
	<i>Lagerstroemia indica x fauriei 'Natchez'</i>	Natchez Crape Myrtle	15 gal	Deciduous	Accent Tree	Medium	Standard	No
	<i>Quercus agrifolia</i>	Coast Live Oak	15 gal	Evergreen	Screen Tree	Low	Standard	Yes
	<i>Quercus wislizeni</i>	Interior Live Oak	15 gal	Evergreen	Accent Tree	Low	Standard	Yes
	<i>Rhus lancea</i>	African Sumac	15 gal	Evergreen	Screen Tree			

Sample Plant Palette

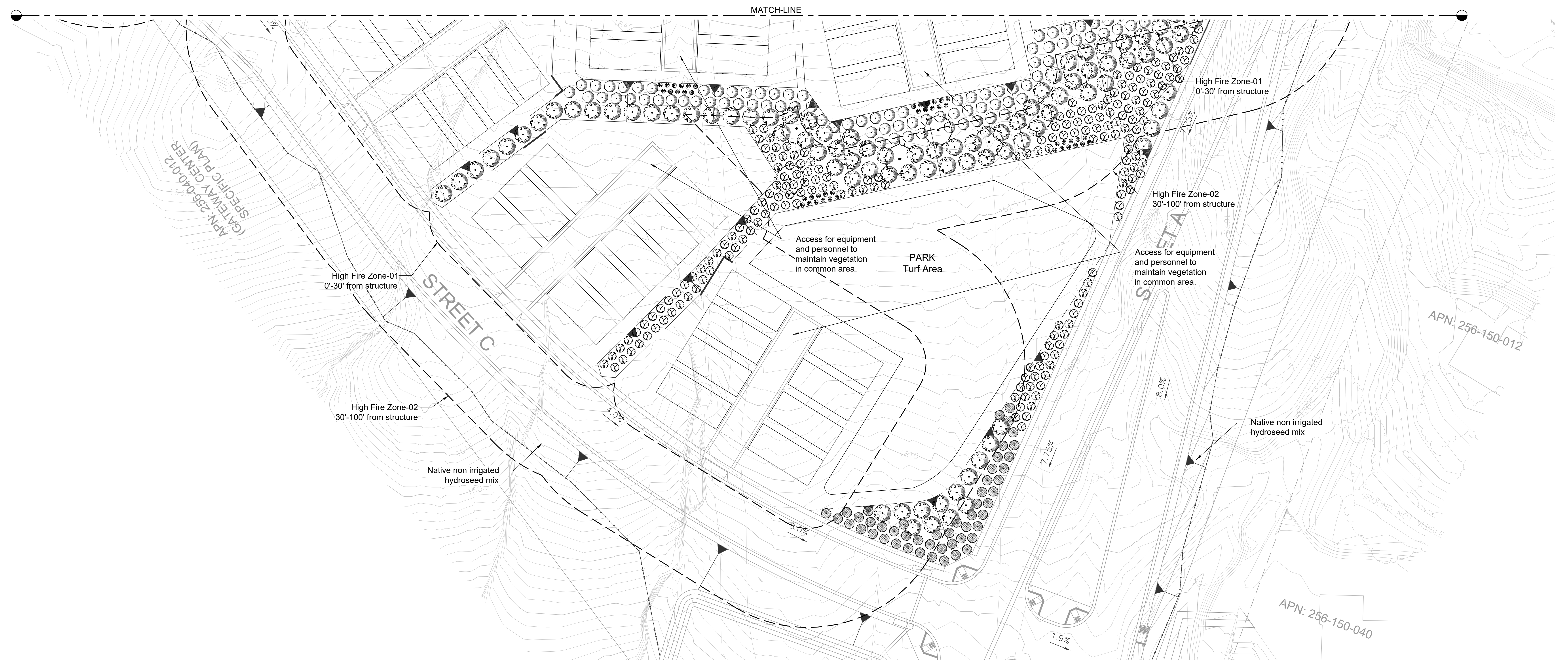
SHRUBS	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	WUCOLS	CA NATIVE
	<i>Acacia redolens 'Desert Carpet'</i>	Desert Carpet Bank Catclaw	5 gal	Evergreen	Low	No
	Agave species	Agave	5 gal	Evergreen	Low	No
	<i>Baccharis pilularis 'Pigeon Point'</i>	Pigeon Point Coyote Brush	5 gal	Evergreen	Low	Yes
	<i>Ceanothus griseus horizontalis</i>	Carmel Creeper	5 gal	Evergreen	Low	Yes
	<i>Ceanothus maritimus 'Valley Violet'</i>	Valley Violet Maritime Ceanothus	5 gal	Evergreen	Low	Yes
	<i>Cistus x pulverulentus 'Sunset'</i>	Sunset Rockrose	5 gal	Evergreen	Low	No
	<i>Dasyliion wheeleri</i>	Grey Desert Spoon	5 gal	Evergreen	Low	No
	<i>Hesperaloe parviflora</i>	Red Yucca	5 gal	Evergreen	Low	No
	<i>Heteromeles arbutifolia</i>	Toyon	5 gal	Evergreen	Low	Yes
	<i>Kniphofia uvaria 'Shining Sceptre'</i>	Shining Sceptre Red Hot Poker	5 gal	Evergreen	Low	No
	<i>Mimulus aurantiacus</i>	Sticky Monkeyflower	5 gal	Evergreen	Low	Yes
	<i>Myoporum parvifolium</i>	Trailing Myoporum	5 gal	Evergreen	Low	No
	<i>Penstemon parryi</i>	Parry's Beardtongue	1 gal	Evergreen	Low	No
	<i>Rhamnus californica</i>	California Coffeeberry	5 gal	Evergreen	Low	Yes
	<i>Rosmarinus officinalis 'Prostratus'</i>	Dwarf Rosemary	5 gal	Evergreen	Low	No
	<i>Salvia clevelandii</i>	Cleveland Sage	5 gal	Evergreen	Low	Yes
	<i>Salvia greggii</i>	Autumn Sage	5 gal	Evergreen	Low	Yes
	<i>Salvia leucantha</i>	Mexican Bush Sage	5 gal	Evergreen	Low	No
	<i>Salvia leucophylla</i>	Purple Sage	5 gal	Evergreen	Low	Yes
	<i>Zauschneria californica</i>	California Fuchsia	5 gal	Evergreen	Low	Yes

NOTE: This information is conceptual in nature and is subject to adjustments pending further verification and Client and Governmental Agency approval. No warranties or guarantees are given or implied by the Architect.



PRELIMINARY FIRE PROTECTION PLAN
GATEWAY HEIGHTS
 MORENO VALLEY, CA

WOOD ARCHITECTURE
 Project: 22070_WA
 Date: 11.07.2022
 Scale: 1" = 30'
www.iwoodarchitecture.com

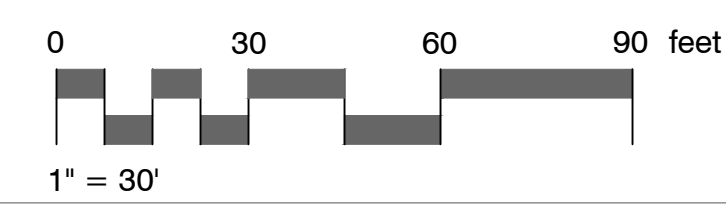


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	<i>Salvia leucophylla</i>	Purple Sage	5 gal	Evergreen	Low	Yes
	<i>Zauschneria californica</i>	California Fuchsia	5 gal	Evergreen	Low	Yes



PRELIMINARY FIRE PROTECTION PLAN
GATEWAY HEIGHTS
 MORENO VALLEY, CA

WOOD ARCHITECTURE
 Project: 22070_WA
 Date: 11.07.2022
 Scale: 1" = 30'

www.iwoodarchitecture.com

Exhibit B

Notice of Intent to Adopt a Mitigated Negative Declaration/Newspaper Notice

Attachment: Exhibit B to Resolution No. 2023-XX - Notice of Intent to Adopt a Mitigated Negative Declaration (6434 : Gateway Heights Tract

**CITY OF MORENO VALLEY
NOTICE OF INTENT TO ADOPT A
MITIGATED NEGATIVE DECLARATION**

NOTICE IS HEREBY GIVEN that the City of Moreno Valley is considering a recommendation that the project herein identified will have no significant environmental impact in compliance with Section 15070 of the CEQA guidelines. A copy of the **MITIGATED NEGATIVE DECLARATION** and the **ENVIRONMENTAL CHECKLIST**, which supports the proposed findings, are on file at the City of Moreno Valley.

Project: General Plan Amendment (PEN20-0095)
Change of Zone (PEN20-0096);
Conditional Use Permit for a Planned Unit Development (PEN21-0066), and
Tentative Tract Map No. 38459 (PEN22-0127)

Applicant: HengHou Group
Owner: Shizao Zheng
Representative: Jason Ackerman

Location: East side of Morton Road approximately 300 feet north of Jennings Court. (APN: 256-150-001)
Proposal: To allow construction of a 108-unit detached townhouse Planned Unit Development with private streets, a 0.89-acre community park, and common area improvements on a 16.59-acre portion of 32.56 acres of vacant land.

Council District: 2

This Notice of Intent (NOI) has been prepared to notify agencies and interested parties that the City of Moreno Valley, as the Lead Agency, has prepared an Initial Study/Mitigated Negative Declaration (IS/MND) pursuant to the requirements of the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with construction and operation of the project as described below.

Project Description: The Project consists of the following entitlements: General Plan Amendment (PEN20-0095) from “R2 Residential” and “Hillside Residential” to “R10 Residential” and “Open Space”; Change of Zone (PEN20-0096) from Residential 2 (R2) District and Hillside Residential (HR) District to Residential 10 (R10) District and Open Space (OS) District; Conditional Use Permit (PEN21-0066) to establish flexible standards using the Planned Unit Development regulations for a new 108-unit detached townhouse condominium development with a 0.89-acre community park; Tentative Tract Map No. 38459 will subdivide the 32.56 gross acres of vacant land into a 16.59-acre common-area lot with 108 air space parcels for condominium purposes and a public park and a 15.97-acre remainder open-space lot.

The Project site is not included on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Document Availability: The Initial Study/Mitigated Negative Declaration, and all documents incorporated and/or referenced therein, can be reviewed during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and Friday, 7:30 a.m. to 4:30 p.m.) at the City of Moreno Valley Planning Division counter, located at 14177 Frederick Street, Moreno Valley, CA 92553. The documents may also be reviewed on the City’s website at <http://www.moreno-valley.ca.us/cdd/documents/about-projects.html>.

Potential Environmental Impacts: The City of Moreno Valley has prepared an Initial Study to determine the environmental effects associated with the above actions and finds the issuance of a Mitigated Negative Declaration is the appropriate level of environmental review. The Initial Study/Mitigated Negative Declaration concludes that all potentially significant impacts of the Project would be mitigated to a less than significant level.

Comment Deadline: Pursuant to Section 15105(b) of the CEQA Guidelines, the City has established a 30-day public review period for the Initial Study/Mitigated Negative Declaration, which begins March 2, 2023 and ends March 31, 2023. Written comments on the Initial Study/Mitigated Negative Declaration must be received at the City of Moreno Valley Community Development Department by no later than the conclusion of the 30-day review period, 5:30 p.m. on March 31, 2023. Written comments on the Initial Study/Mitigated Negative Declaration should be addressed to:

Luis Lopez, Contract Planner
14177 Frederick Street
Post Office Box 88005
Moreno Valley, California 92552
Phone: (951) 413-3206
Email: luisl@moval.org

Press-Enterprise
Newspaper

March 2, 2023
Date of Publication

Sean P. Kelleher
Planning Official
Community Development Department

Attachment: Exhibit B to Resolution No. 2023-XX - Notice of Intent to Adopt a Mitigated Negative Declaration (6434 : Gateway Heights Tract

Exhibit C

Mitigation Monitoring and Reporting Program

Attachment: Exhibit C to Resolution No. 2023-XX - Mitigation Monitoring and Reporting Program (6434 : Gateway Heights Tract 38459)

Mitigation Monitoring and Reporting Program

Gateway Heights Project (PEN 21-0066)

City of Moreno Valley

Mitigation Measure	Timing of Verification	Party Responsible for Implementation and Reporting	Status/Date/Initials
Aesthetics			
<p>RR AES-1: The Developer shall prepare a Lighting Plan that provides the type and location of proposed exterior lighting and signage, subject to the review and approval of the City's Development Services Department. All new lighting shall be shielded and down-cast, such that the light is not cast onto adjacent properties or visible from above. Night lighting shall be directed away from the MSHCP Conservation Area to protect species within the MSHCP Conservation Area from direct and indirect night lighting. Prior to approval of the Final Design, an analysis of potential impacts from light and glare from interior and exterior building lighting, safety and security lighting, and vehicular traffic accessing the site shall be submitted to the City for review and approval. This analysis shall demonstrate that due to shielded and directional lighting in compliance with Mt. Palomar lighting standards, no lighting shall be introduced into the adjacent Conservation Area. If potential lighting impacts are identified, the lighting design (placement, light spectrum, and shielding), or other design solutions acceptable to the City of Moreno Valley shall be implemented to eliminate lighting impacts on the adjacent Conservation Areas. Shielding, including Turtle Bay type LED lighting, shall be incorporated into Project designs to ensure ambient lighting in the MSHCP Conservation Area is not increased. The Lighting Plan shall include monitoring during construction and post-project to demonstrate lighting levels do not increase in the Conservation Area. If light standards are exceeded, the Project Applicant is responsible for immediate implementation of remedial actions to reduce light levels to acceptable levels identified in the Lighting Plan.</p>	<p>Prior to commencing ground- or vegetation disturbing activities</p>	<p>Project Proponent</p>	

Attachment: Exhibit C to Resolution No. 2023-XX - Mitigation Monitoring and Reporting Program (6434 : Gateway Heights Tract 38459)

Mitigation Monitoring and Reporting Program

Gateway Heights Project (PEN 21-0066)

City of Moreno Valley

Mitigation Measure	Timing of Verification	Party Responsible for Implementation and Reporting	Status/Date/Initials
Biological Resources			
<p>RR BIO-1: The Developer shall obtain a tree removal permit from the City, if fuel modification, grading, or other improvements require removal of any heritage trees. The Developer would incorporate mitigation trees, replacing removed heritage trees, resulting from a tree removal permit into the Project's final landscape plan.</p>	<p>Prior to Construction</p>	<p>City's Development Services Department</p>	
<p>MM BIO-1: To maintain compliance with the Migratory Bird Treaty Act (MBTA and California Fish and Game Code Sections 3503, 3503.5, and 3513, site preparation activities (ground disturbance, construction activities, staging equipment, and/or vegetation removal activities for the project shall be avoided, to the greatest extent possible, during the nesting bird season. If ground disturbing and/or vegetation clearance activities are scheduled to occur during the avian nesting season, a pre- construction nesting bird survey shall be conducted by a qualified biologist within the Project Site and a 500-foot buffer around the Project Site. Surveys shall be conducted within 3 days prior to initiation of activity and shall be conducted between dawn and noon. The survey results shall be provided to the City's Planning Department. The Project Applicant shall adhere to the following:</p> <ol style="list-style-type: none"> 1. Applicant shall designate a biologist (Designated Biologist) experienced in: identifying local and migratory bird species of special concern; conducting bird surveys using appropriate survey methodology; nesting surveying techniques, recognizing breeding and nesting behaviors, locating nests and breeding territories, and identifying nesting stages and nest success; determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures. 	<p>Prior to commencing ground- or vegetation disturbing activities</p>	<p>Project Proponent</p>	

Attachment: Exhibit C to Resolution No. 2023-XX - Mitigation Monitoring and Reporting Program (6434 : Gateway Heights Tract 38459)

Mitigation Monitoring and Reporting Program

Gateway Heights Project (PEN 21-0066)

City of Moreno Valley

Mitigation Measure	Timing of Verification	Party Responsible for Implementation and Reporting	Status/Date/Initials
<p>2. Pre-activity field surveys shall be conducted at the appropriate time of day/night, during appropriate weather conditions, no more than 3 days prior to the initiation of Project activities. Surveys shall encompass all suitable areas including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the Project site; density, and complexity of the habitat; number of survey participants; survey techniques employed; and shall be sufficient to ensure the data collected is complete and accurate.</p> <p>If nesting birds are not found within the project site, site preparation and construction activities may begin during the nesting/breeding season. If nesting birds (including nesting raptors are detected, then avoidance or minimization measures shall be undertaken in consultation with the City of Moreno Valley and California Department of Fish and Wildlife. Measures shall include immediate establishment of an avoidance buffers shall be implemented as determined by a qualified biologist and approved by the City of Moreno Valley, based on their best professional judgement and experience. The buffer shall be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. The buffer around the nest shall be delineated and flagged, and no construction activity shall occur within the buffer area until a qualified biologist determines nesting species have fledged and the nest is no longer active or the nest has failed. The biologist shall monitor the nest at the onset of project activities, and at the onset of any changes in such project activities (e.g., increase in number or type of equipment, change in equipment usage, etc.) to determine the efficacy of the buffer. If the biologist determines that such project activities may be causing an adverse reaction, the biologist shall adjust the buffer accordingly or</p>			

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<p>implement alternative avoidance and minimization measures, such as redirecting or rescheduling construction or erecting sound barriers. All work within these buffers will be halted until the nesting effort is finished (i.e., the juveniles are surviving independent from the nest). All nests shall be monitored as determined by the qualified biologist until nestlings have fledged and dispersed or it is otherwise confirmed that the nest has been unsuccessful or abandoned. Work can resume within these avoidance areas when no other active nests are found. Upon completion of the survey and nesting bird monitoring, a report shall be prepared and submitted to City of Moreno Valley Planning Division for mitigation monitoring compliance record keeping.</p>			
<p>MM BIO-2: To avoid project-related impacts to burrowing owls potentially occurring on or in the vicinity of the project site, the Developer shall have a qualified biologist conduct a project-specific habitat assessments and pre-construction survey for burrowing owl in accordance with the March 2006 Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area. This survey shall occur within 30 days prior to ground-disturbance activities (e.g., vegetation clearing, clearing, and grubbing, tree removal, site watering) within those portions of the project site containing suitable burrowing owl habitat. If ground disturbing activities in these areas are delayed or suspended for more than 30 days after the pre- construction survey, the area shall be resurveyed for owls. The results of the survey should be submitted to the City and California Department of Fish and Wildlife within three days of survey completion. In addition, a preconstruction survey for burrowing owl shall be conducted within 3 days prior to initiation of Project activities and reported to CDFW as described above.</p>	<p>Prior to commencing ground- or vegetation disturbing activities</p>	<p>Project Proponent</p>	

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<p>If no burrowing owls are observed during the survey, site preparation and construction activities may begin. If burrowing owl are present within the survey area, then avoidance or minimization measures shall be undertaken in consultation with the City of Moreno Valley, California Department of Fish and Wildlife (CDFW) and US Fish and Wildlife Service (USFWS). CDFW shall be sent written notification within 48 hours of detection of burrowing owls. If active nests are identified on the Project site, the Project applicant shall not commence activities until it can be determined that the burrows are not being used by adult or juvenile owls or following CDFW approval of a Burrowing Owl Plan as described below. If owl presence is difficult to determine, a qualified biologist shall monitor the burrows with motion-activated trail cameras for at least 24 hours to evaluate burrow occupancy. The onsite qualified biologist will verify the nesting effort has finished according to methods identified in the Burrowing Owl Plan.</p> <p>The qualified biologist and Project Applicant shall coordinate with the City, CDFW, and USFWS to develop a Burrowing Owl Plan to be approved by the City, CDFW, and USFWS prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, relocation, monitoring, minimization, and/or mitigation actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites and details on proposed buffers if avoiding the burrowing owls or information on the adjacent or nearby suitable habitat available to owls for relocation. If no suitable habitat is available nearby for relocation, details regarding the habitat characteristics of the proposed relocation site, creation and funding of artificial burrows (numbers, location, and type of burrows) and management activities for relocated owls shall also be included in the Burrowing Owl Plan. The City shall implement the Burrowing Owl Plan</p>			

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<p>following CDFW and USFWS review and approval.</p> <p>If burrowing owls are observed within Project Site(s) during Project implementation and construction, the Project applicant shall notify CDFW immediately in writing within 72 hours of detection. A Burrowing Owl Plan shall be submitted to CDFW for review and approval within two weeks of detection and no Project activity shall continue within 1000 feet of the burrowing owls until CDFW approves the Burrowing Owl Plan. The City shall be responsible for implementing appropriate avoidance and mitigation measures, including burrow avoidance, passive or active relocation, or other appropriate mitigation measures as identified in the Burrowing Owl Plan.</p> <p>A final report shall be prepared by the qualified biologist documenting the results of the burrowing owl surveys and detailing avoidance, minimization, and mitigation measures. The final report shall be submitted to the City and CDFW within 30 days of completion of the survey and burrowing monitoring for mitigation monitoring compliance record keeping.</p>			
<p>MM BIO-3: For all features identified as jurisdictional that cannot be avoided, the Developer shall obtain permits from the respective agencies prior to the initiation of construction activities. These permits include a Clean Water Act (CWA) Section 404 permit from the USACE, a CWA Section 401 water quality certification from the Regional Water Quality Control Board, and a CDFW Section 1602 Notification of Lake or Streambed Alteration.</p> <p>The Developer shall implement and comply with all measures required by the jurisdictional permits. Mitigation for the loss of jurisdictional resources shall be negotiated with the resource agencies (US Army Corps of Engineers, Regional Water Quality Control Board, and California</p>	<p>Prior to Construction</p>	<p>Developer/Respective Agencies</p>	

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Department of Fish and Wildlife) during the regulatory permitting process.			
<p>MM BIO-4: To ensure long-term conservation of avoided riparian/riverine resources the Project Applicant will record a deed restriction, conservation easement, or other appropriate mechanisms over avoided riparian/riverine resources on the Project Site. The recorded realty instrument shall be provided to the City prior to grading.</p> <p>The Applicant proposes to compensate for impacts to MSHCP riparian/riverine areas by providing a 1:1 ratio of reestablishment or a 2:1 ratio of rehabilitation credits at Riverpark Mitigation Bank. If credits at Riverpark Mitigation Bank are not available prior to grading, the Developer shall compensate for impacts to jurisdictional waters and riparian/riverine areas by providing a 31:1 ratio of offsite land within the Santa Ana Watershed to be acquired for the purpose of In-Perpetuity Preservation, or through the purchase of mitigation credits at an established off-site Mitigation Bank in Western Riverside County. Mitigation proposed on land acquired for the purpose of in-perpetuity mitigation that is not part of an agency-approved mitigation bank or in-lieu fee program shall include the preservation, creation, restoration, and/or enhancement of similar habitat within the Santa Ana Watershed pursuant to a Habitat Mitigation and Monitoring Plan (HMMP) to be approved by the Lead and Responsible agencies. The HMMP shall be prepared prior to any impacts, and it shall provide details as to the implementation of mitigation, maintenance, future monitoring, and management. The goal of the mitigation shall be to preserve, create, restore, and/or enhance similar habitat with equal or greater function and value than the affected habitat.</p>	Prior to commencing ground- or vegetation disturbing activities	Project Proponent	

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<p>MM BIO-5: The Developer shall pay the applicable MSHCP Development Mitigation Fee prior to initiation of grading activities.</p>	<p>Prior to Initiation of Grading Activities</p>	<p>Developer</p>	
<p>MM BIO-6: The following avoidance and minimization measures shall be implemented during Project construction activities:</p> <ul style="list-style-type: none"> • Construction limits along the northern and eastern boundaries of the Project shall be clearly marked so that adjacent native vegetation is avoided. • Staging and storage areas for spoils, equipment, materials, fuels, lubricants, and solvents shall be located within the designated impact area or adjacent developed areas. • A Stormwater Pollution Prevention Plan shall be developed and implemented. • Invasives: Invasive species identified in Table 6-2 of the MSHCP shall not be used in development landscape plans or restoration plan activities. • Construction-related and long-term Project operation noise shall not exceed 65 dBA Leq in the adjacent MSHCP Criteria Cell. Prior to issuance of land development permits, including clearing or grubbing and grading and/or construction permits for areas within or adjacent to the MSHCP Criteria Cell, the applicant shall prepare and submit to the satisfaction of the City, an acoustical analysis to demonstrate that the 65 dBA Leq noise level is not exceeded in the Criteria Cell. The acoustical analysis shall describe the methods by which construction noise shall not exceed 65 dBA Leq 	<p>Ongoing During Construction</p>	<p>Developer/Qualified Biologist</p>	

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<p>and how noise levels will be monitored during construction and for the life of the project. Noise abatement methods may include, but are not limited to, reoperation of specific construction activities, installation of noise abatement at the source, and/or installation of noise abatement at the receiving areas.</p> <ul style="list-style-type: none"> Noise Plan: Prior to approval of the Final Design, a Noise plan shall be submitted to the City of Moreno Valley for review and approval. The Noise Plan shall identify noise generating land uses that may affecting the MSHCP Conservation Area and shall incorporate setbacks, berms or walls to minimize the effects of noise on MSHCP Conservation Area resources pursuant to applicable rules, regulations and guidelines related to land use noise standards. The MSHCP identifies that Project noise impacts do not exceed the residential standards within the Conservation Areas. For planning purposes, wildlife within the MSHCP Conservation Area should not be subject to noise that would exceed residential noise standards. The Noise Plan shall include monitoring during construction and post-project to demonstrate noise levels in the Conservation Area do not exceed residential standards. If noise standards are exceeded, the Project Applicant is responsible for immediate implementation of remedial actions to reduce noise levels to acceptable levels. 			

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<ul style="list-style-type: none"> Landscaping Plan: develop a landscaping plan that includes the use of native plant material on the Project site and avoids the use of invasive plant species identified in Table 6-2 of the MSHCP for landscaping portions of development that are adjacent to the MSHCP Conservation Area including avoided riparian/riverine resources. Prior to approval of the Final Design, a landscaping plan, using native vegetation, for areas adjacent to the Conservation Area shall be submitted to the City for review and approval. Barrier and Fencing Plan: A Barrier and Fencing plan that provides specific details designed to minimize unauthorized public access, domestic animal predation, illegal trespass, and dumping in the MSHCP Conservation Area. Prior to approval of the Final Design, a fencing plan shall be submitted to the City of Moreno Valley and the Western Riverside County Regional Conservation Authority for review and approval. The fencing plan shall include 8-foot tall fencing made of secure and fire-proof materials (such as brick, stone, or metal) placed along the entire boundary adjacent to Conservation Area to prohibit movement of people and pets from the development area into the Conservation Area. The top of all walls and fences shall be designed to prevent animals from entering Conservation Areas using systems such as a roller bars, angled fence tops, or other effective fence designs to keep out pets, especially cats. To prevent bird strikes 			

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<p>and reduce bird mortality, no section of the fence should include clear panels or be made of transparent materials such as glass or plastic. The Fencing Plan shall identify a maintenance and monitoring plan for the fence, including who is responsible for fence maintenance with sufficient funding to maintain the barrier.</p> <ul style="list-style-type: none"> • Grading/Land Development – Manufactured slopes associated with proposed site development shall not extend into the MSHCP Conservation Area. • Best Management Practices: The MND should incorporate the guidance in MSHCP Section 7.0 and Appendix C of the MSHCP for addressing Best Management Practices. 			
<p>MM BIO-7: The Developer shall pay the applicable Stephens' Kangaroo Rat Habitat Conservation Plan Development Mitigation Fee prior to initiating any grading activities.</p>	<p>Prior to Construction</p>	<p>Developer</p>	
<p>Cultural Resources</p>			
<p>RR CUL-1: In the event of the discovery of human remains, the developer shall contact the County coroner immediately. If human remains of Native American origin are discovered during ground disturbing activities, the developer shall comply with the State laws relating to the disposition of Native American burials that fall within the jurisdiction of the Native American Heritage Commission (NAHC; PRC §5097). According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that excavation is stopped near discovered human remains until the coroner can</p>	<p>Ongoing During Construction</p>	<p>Contractor/Qualified Professional Archaeologist</p>	

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<p>determine whether the remains are those of a Native American. If the remains are determined to be Native American, the California Native American Heritage Commission shall be notified, and appropriate measures provided by State law shall be implemented to determine the most likely living descendant(s). Disposition of the remains shall be overseen by the most likely living descendants to determine the most appropriate means of treating the human remains and any associated grave artifacts.</p>			
<p>MM CUL-1: Prior to the issuance of a demolition permit, the Developer shall submit the name and qualifications of a qualified archaeologist to the City of Moreno Valley Community Development Department for review and approval. Once approved, the qualified archaeologist shall be retained by the Developer. In the event that suspected cultural (archaeological) resources or tribal cultural resources are inadvertently unearthed during excavation activities, the contractor shall immediately cease all earth-disturbing activities within a 100-foot radius of the area of discovery. The Project contractor or Developer shall contact the qualified archaeologist to request an evaluation of the significance of the find and determine an appropriate course of action. If avoidance of the resource(s) is not feasible, salvage operation requirements pursuant to Section 15064.5 of the State California Environmental Quality Act Guidelines shall be followed in consultation with the City. After the find has been appropriately avoided or mitigated, work in the area may resume.</p>	<p>Prior to the Issuance of a Grading Permit</p>	<p>Developer/Contractor/Qualified Professional Archeologist</p>	
<p>MM CUL-2: Archaeological monitoring will be conducted by a qualified archaeologist for all ground disturbance activities that occur within 30 meters (100 feet) of Sites 33-015937 and 33 015938, which are identified in greater detail within the Project's cultural reports (Appendix C). If any suspected cultural (archaeological) resources are</p>	<p>Ongoing During Construction</p>	<p>Developer/Contractor/Qualified Professional Archeologist</p>	

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detected, the procedures identified in MM CUL-1 will be implemented.			
Energy			
<p>RR ENE-1: The Project must be designed in accordance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.</p>	Prior to Construction	Developer	
<p>RR ENE-2: The Project is subject to the California Green Building Standards Code (CALGreen) (CCR, Title 24, Part 11). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.</p>	Prior to Construction	Developer	
<p>RR ENE-3: The Project shall comply with applicable policies of the Moreno Valley Climate Action Plan by complying with meeting the following policies:</p> <ol style="list-style-type: none"> 1. Require new multi-family residential development to reduce the need for external trips by providing useful services/facilities on-site such as electric vehicle infrastructure. (Policy TR-9) 2. incentives such as streamlined permitting or bonus density for new multi-family buildings and reroofing projects to install “cool” roofs consistent with the current California Green Building Code (CALGreen) standards for commercial and industrial buildings. (Policy R-1) 3. Require new construction and major remodels to install interior real-time energy smart meters in line with current utility provider (e.g. MVU, SCE) efforts. (Policy R-2) 4. Reduce emissions from heavy-duty construction equipment by limiting idling based on South Coast Air Quality Management 	Prior to Construction	Developer	

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<p>District (SCAQMD) requirements and utilizing cleaner fuels, equipment, and vehicles.</p> <ul style="list-style-type: none"> a. Require provision of clear signage reminding construction workers to limit idling. b. Require the Developer to limit GHG emissions through one or more of the following measures: <ul style="list-style-type: none"> i. substitute electrified or hybrid equipment for diesel/gas powered equipment. ii. Use alternative fueled equipment on site. iii. Avoid use of on-site generators. (Policy OR-2). 			
Geology and Soils			
<p>MM GEO-1 : Prior to approval of final plans and specifications for the Project, the City shall review the Project plans to confirm that all recommendations in the Geotechnical Report (prepared by LGC Geo-Environmental, Inc in 2018), the Slope Stability Report (prepared by Dynamic Geotechnical Solutions in 2021), and any future geotechnical reports have been fully and appropriately incorporated into all grading and construction drawings.</p>	<p>Prior to Approval of Final Plans</p>	<p>Developer/City's Development Services Department</p>	
<p>MM GEO-2: Prior to the issuance of a grading permit, the Developer shall submit the name and qualifications of a qualified paleontologist to the City of Moreno Valley Community Development Department for review and approval. Once approved, the qualified paleontologist shall be retained by the Developer on an on-call basis to observe grading activities in the Young Alluvial Valley Deposits and Old Alluvial Fan Deposits on the Project Site and to salvage and catalogue fossils as necessary. At the Project's Pre-Grade Meeting, the paleontologist shall discuss the sensitivity of the sediment being</p>	<p>Prior to the Issuance of a Grading Permit</p>	<p>Developer/ City's Development Services Department/Qualified Paleontologist</p>	

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<p>graded and shall establish procedures for monitoring. Protocols must be developed and explained for temporarily halting or redirecting work to permit sampling, identification, and evaluation of any fossils discovered. If the fossils are deemed significant, the paleontologist shall determine appropriate actions, in cooperation with the City of Moreno Valley, to recover and treat the fossils and to prepare them to the point of identification. A final Paleontological Resources Monitoring Report shall include a catalogue and analysis of the fossils found; a summary of their significance; and the repository that would curate the fossils in perpetuity.</p>			
Hazards and Hazardous Materials			
<p>PDF HAZ-1: The Project's proposed basins would be designed and maintained to provide for a maximum 48-hour detention period following the design storm, and to remain totally dry between rainfalls.</p>	<p>During Project Design</p>	<p>Developer/City's Development Services Department</p>	
<p>PDF HAZ-2: Vegetation in and around the basins that would provide food or cover for birds would be incompatible with airport operations and shall not be utilized in Project landscaping. Trees shall be spaced so as to prevent large expanses of contiguous canopy, when mature. Landscaping in and around the basins shall not include trees or shrubs that produce seeds, fruits, or berries. Landscaping in the basins, if not rip rap, would be in accordance with the guidance provided in ALUC "Landscaping Near Airports" brochure, and the "Airports, Wildlife, and Stormwater Management" brochure available at RCALUC.org which lists acceptable plants from the Riverside County Landscaping Guide or other alternative landscaping as may be recommended by a qualified wildlife hazard biologist.</p>	<p>During Project Design</p>	<p>Developer/City's Development Services Department</p>	

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<p>PDF HAZ-3: A notice shall be permanently affixed to the fencing surrounding the basins with the language similar to the following: "There is an airport nearby. This stormwater basin is designed to hold stormwater for only 48 hours and to not attract birds. Proper maintenance is necessary to avoid bird strikes." This sign would also include the name, telephone number, or other contact information of the person or entity responsible for monitoring and maintain the basins.</p>	<p>During Project Operation</p>	<p>Developer/City's Development Services Department</p>	
<p>PDF HAZ-4: Prior to close of escrow on the Project's future proposed homesites, the "Notice of Airport in Vicinity" that was attached to the ALUC's 2020 Airport Land Use Commission (ALUC) Development Review – Director's Determination letter shall be provided to all prospective purchasers and occupants of the Project.</p>	<p>During Project Operation</p>	<p>Developer/City's Development Services Department</p>	
<p>Public Resources</p>			
<p>RR PUB-1: The Developer shall comply with all applicable codes, ordinances, and regulations, including the most current edition of the California Fire Code and the City of Moreno Valley Municipal Code, regarding fire prevention and suppression measures; fire hydrants; fire access; water availability; and other, similar requirements. Prior to issuance of building permits, the City of Moreno Valley Community Development Department and the Moreno Valley Fire Department shall verify compliance with applicable codes and that appropriate fire safety measures are included in the Project design. All such codes and measures shall be implemented prior to occupancy.</p>	<p>During Project Construction</p>	<p>Developer/Contractor/ City's Development Services Department/Moreno Valley Fire Department</p>	

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<p>RR PUB-2: The Developer shall pay all applicable Development Impact Fees (DIFs) prior to the issuance of building permits, for parkland dedication, parkland improvements, public safety facilities, other governmental facilities, and outside agency fees including school district fees.</p>	<p>Prior to Issuance of a Building Permit</p>	<p>Developer/City's Development Services Department</p>	
<p>Tribal Cultural Resources</p>			
<p>MM TCR-1: Archaeological Monitoring. Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist, who meets the U.S. Secretary of the Interior Standards, to conduct monitoring of all mass grading and trenching activities.</p> <p>The Project Archaeologist, in consultation with the Consulting Tribe(s) including Pechanga Band of Luiseño Indians, the contractor, and the City, shall develop a CRMP as defined in MM TCR-3. The Project archeologist shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The archaeological monitor shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed.</p>	<p>Prior to Issuance of a Grading Permit</p>	<p>Developer/Qualified Professional Archeologist</p>	
<p>MM TCR-2: Native American Monitoring. Prior to the issuance of a grading permit, the Developer shall secure agreements with the Pechanga Band of Luiseño Indians for tribal monitoring. The City is also required to provide a minimum of 30 days' advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. The Native American</p>	<p>Prior to Issuance of a Grading permit</p>	<p>Developer/Qualified Professional Archeologist/City's Development Services Department</p>	

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<p>Monitor(s) shall attend the pre-grading meeting with the Project Archaeologist, City, the construction manager and any contractors and will conduct the Tribal Perspective of the mandatory Cultural Resources Worker Sensitivity Training to those in attendance.</p>			
<p>MM TCR-3A: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:</p> <ul style="list-style-type: none"> a. One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department: <ul style="list-style-type: none"> i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources. ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to MM CUL-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in MM CUL-1. The location for the future reburial area shall be identified on a confidential exhibit on file with the City, and concurred to by the 		<p>Developer/Qualified Professional Archeologist/Contractor</p>	

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<p>Consulting Native American Tribal Governments prior to certification of the environmental document.</p>			
<p>MM TCR-3B: Cultural Resource Monitoring Plan (CRMP). The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a CRMP in to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the Project Site. A consulting Tribe is defined as a Tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:</p> <ul style="list-style-type: none"> a Project description and location; b Project grading and development scheduling; c Roles and responsibilities of individuals on the Project; d The pre-grading meeting and Cultural Resources Worker Sensitivity Training details; e The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation. f The type of recordation needed for inadvertent finds and the stipulations of recordation of sacred items. g Contact information of relevant individuals for the Project. 	<p>Prior to Construction</p>	<p>Developer/Qualified Professional Archeologist/City's Development Services Department/Contractor</p>	

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Mitigation Measure	Timing of Verification	Party Responsible for Implementation and Reporting	Status/Date/Initials
<p>MM TCR 4: The City shall verify that the following note is included on the Grading Plan:</p> <p>"If any suspected archaeological resources are discovered during ground disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."</p>	<p>Prior to Construction</p>	<p>City's Development Services Department</p>	
<p>MM TCR 5: Inadvertent Finds. If potential historic or cultural resources are uncovered during excavation or construction activities at the Project Site that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to Project approval, all ground disturbing activities in the affected area within 100 feet of the uncovered resource must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional archeologist and Tribal Monitors, if needed. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in MM TCR-2 before</p>	<p>Ongoing During Construction</p>	<p>Developer/Qualified Professional Archeologist/City's Development Services Department/Contractor</p>	

Attachment: Exhibit C to Resolution No. 2023-XX - Mitigation Monitoring and Reporting Program (6434 : Gateway Heights Tract 38459)

Mitigation Monitoring and Reporting Program

Gateway Heights Project (PEN 21-0066)

City of Moreno Valley

Mitigation Measure	Timing of Verification	Party Responsible for Implementation and Reporting	Status/Date/Initials
<p>any further work commences in the affected area. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan shall be prepared by the Project Archeologist, in consultation with the Tribe, and shall be submitted to the City for their review and approval prior to implementation of the said plan.</p>			
<p>MM TCR 6: Human Remains. If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the “most likely descendant”. The “most likely descendant” shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).</p>	<p>Ongoing During Construction</p>	<p>Qualified Professional Archeologist/County Coroner/Contractor</p>	
<p>MM TCR 7: Non-Disclosure of Reburial Locations. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code 6254 (r), parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code 6254 (r).</p>	<p>Ongoing During Construction</p>	<p>Qualified Professional Archeologist/County Coroner/Contractor</p>	

Attachment: Exhibit C to Resolution No. 2023-XX - Mitigation Monitoring and Reporting Program (6434 : Gateway Heights Tract 38459)

Mitigation Monitoring and Reporting Program

Gateway Heights Project (PEN 21-0066)

City of Moreno Valley

Mitigation Measure	Timing of Verification	Party Responsible for Implementation and Reporting	Status/Date/Initials
<p>MM TCR 8: Archeology Report - Phase III and IV. Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required for the Project) and the Phase IV Cultural Resources Monitoring Report that complies with the Community Development Department's requirements for such reports. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. The Community Development Department shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, the Community Development Department shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s).</p>	<p>Prior to Final Inspection</p>	<p>Developer/Qualified Professional Archeologist/City's Development Services Department</p>	
<p>MM TCR 9: In accordance with consultations and determinations made by the developer and the Pechanga Tribe, all recorded features within CA-RIV-8274 will be avoided except for bedrock milling feature (1), which is on Lot 8. The Pechanga Tribe shall work with the project archaeologist, the developer, and the grading contractor or appropriate personnel to determine a reasonable methodology for relocating these features. Attempts will be made to excavate and relocate these boulders to the open space preserve, should their size and depth permit. If the boulders cannot be moved intact due to feasibility constraints, an attempt will be made to transversally cut into them so as to free the exposed prehistoric features, allowing the slicks themselves to be relocated to the adjacent open space preserve. The current Department of Parks and Recreation (DPR) forms shall be</p>	<p>Ongoing During Construction</p>	<p>Developer/Qualified Professional Archeologist/City's Development Services Department/Contractor</p>	

Attachment: Exhibit C to Resolution No. 2023-XX - Mitigation Monitoring and Reporting Program (6434 : Gateway Heights Tract 38459)

Mitigation Monitoring and Reporting Program

Gateway Heights Project (PEN 21-0066)

City of Moreno Valley

Mitigation Measure	Timing of Verification	Party Responsible for Implementation and Reporting	Status/Date/Initials
<p>updated, detailing which features were relocated, the process taken, and updated maps provided documentation of the features' new location. The site record should clearly indicate that the features are not in their original location and why they were relocated.</p>			
<p>MM TCR 10: Prior to any earthmoving activities, milling features 3 and 5 of CA-RIV-8274 will be fenced and identified as an Environmentally Sensitive Area (ESA). The Developer will ensure that appropriate temporary fencing is installed (i.e., orange fabric/barrier fencing) to prevent any unintentional disturbances to features 3 and 5 of CA-RIV-8274 during any earthmoving activities on the project site. The fencing will be installed before clearing and grubbing and will not be removed until all earthmoving activities have been completed. The project archaeologist and Pechanga Tribal Monitor will be on site to monitor the fence installation and removal and will conduct daily inspections of the fencing to make sure that it is intact and has not been breached. If the project archaeologist and/or Pechanga Tribal Monitor identify a breach of the fence, i.e., removal, cut, depressed, driven over or intentionally breached in any way, all work within a 25-foot buffer shall cease and the Developer, City, project archaeologist and the Pechanga Tribe shall meet and confer as to the best method to repair the fencing. The person(s) responsible for the breach and the Construction Supervisor (or appropriate supervisory personnel) shall be required to retake the sensitivity training provided at the beginning of construction, in addition to any other remedies considered appropriate.</p>	<p>Prior to any Earthmoving Activities</p>	<p>Developer/Qualified Professional Archeologist/City's Development Services Department/Contractor</p>	

Attachment: Exhibit C to Resolution No. 2023-XX - Mitigation Monitoring and Reporting Program (6434 : Gateway Heights Tract 38459)

ORDINANCE NO. XXX

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING CHANGE OF ZONE (PEN20-0096) TO AMEND THE CITY ZONING ATLAS FROM RESIDENTIAL 2 DISTRICT (R2) AND HILLSIDE RESIDENTIAL DISTRICT (HR) TO RESIDENTIAL 10 DISTRICT (R10) AND OPEN SPACE (OS) DISTRICT FOR THE PROPERTY LOCATED ON THE EAST SIDE OF MORTON ROAD, APPROXIMATELY 300 FEET NORTH OF JENNINGS COURT (APN 256-150-001).

WHEREAS, the City of Moreno Valley (“City”) is a general law city and a municipal corporation of the State of California; and has the authority to approve amendments to the City’s General Plan and City’s Zoning Atlas; and

WHEREAS, HengHou Group (“Applicant”) has submitted is seeking approval for the Gateway Heights Residential Project which includes approval of General Plan Amendment (PEN20-0095), Conditional Use Permit (PEN21-0066) and Tentative Tract Map 38459 (PEN22-0127) for the development of a 108-unit detached townhouse condominium Planned Unit Development on 32.56-acres, with associated amenities and public improvements (“Proposed Project”) located on the east side of Morton Road, approximately 300 feet north of Jennings Court (APN 256-150-001) (“Project Site”); and

WHEREAS, on June 8, 2023, the public hearing to consider the Proposed Project was duly conducted by the Planning Commission at which time all interested persons were provided with an opportunity to testify and to present evidence; and

WHEREAS, on June 8, 2023, a public hearing was conducted by the Planning Commission to consider General Plan Amendment (PEN20-0095), after which the Planning Commission approved Planning Commission Resolution 2023-23, a recommendation that the City Council approve General Plan Amendment (PEN20-0095); and

WHEREAS, on June 8, 2023, a hearing was conducted by the Planning Commission whereby the Planning Commission approved Planning Commission Resolution No. 2023-22, recommending the City Council approve the Mitigated Negative Declaration/Initial Study, Mitigation Monitoring and Reporting Program, and Proposed Project; and

WHEREAS, pursuant to the provisions of Section 9.02.200 (Public Hearing and Notification Procedures) of the Municipal Code and Government Code section 65905, a public hearing was scheduled for September 5, 2023, before the City Council and notice thereof was duly published and posted, and mailed to all property owners of record with 600 feet of the Site; and

Attachment: Ordinance No. XXXX (6434 : Gateway Heights Tract 38459)

WHEREAS, on September 5, 2023, the City Council continued the consideration of the Proposed Project and public hearing to a date uncertain; and

WHEREAS, on December 5, 2023, the public hearing to consider the Proposed Project was duly conducted by the City Council at which time all interested persons were provided with an opportunity to testify and to present evidence; and

WHEREAS, on December 5, 2022, in accordance with the provisions of the California Environmental Quality Act (CEQA) and CEQA Guidelines, the City Council considered and approved Resolution 2023-__ certifying the Proposed Project’s Mitigated Negative Declaration, and adopting a Mitigation Monitoring and Reporting Program.

THE CITY COUNCIL OF THE CITY OF MORENO VALLEY DOES ORDAIN AS FOLLOWS:

Section 1. AMENDMENT OF THE OFFICIAL ZONING ATLAS

The City of Moreno Valley Official Zoning Atlas, as adopted by Ordinance No. 981, on August 3, 2021, of the City of Moreno Valley, and as amended thereafter from time to time by the City Council of the City of Moreno Valley, is further amended by placing in effect the zone or zone classification to page 96 of the Official Zoning Atlas as shown on the attached map marked “Exhibit A” and included herein by reference and on file in the office of the City Clerk.

Section 2. EFFECT OF ENACTMENT

Except as specifically provided herein, nothing contained in this ordinance shall be deemed to modify or supersede any prior enactment of the City Council which addresses the same subject addressed herein.

Section 3. NOTICE OF ADOPTION

Within fifteen days after the date of adoption hereof, the City Clerk shall certify to the adoption of this ordinance and cause it to be posted in three public places within the city.

Section 4. EFFECTIVE DATE

This ordinance shall take effect thirty days after the date of its adoption.

[Remainder of Page Intentionally Left Blank]

Attachment: Ordinance No. XXXX (6434 : Gateway Heights Tract 38459)

APPROVED AND ADOPTED this 5th day of December, 2023.

CITY OF MORENO VALLEY
CITY COUNCIL

Ulises Cabrera
Mayor of the City of Moreno Valley

ATTEST:

Jane Halstead, City Clerk

APPROVED AS TO FORM:

Steven B. Quintanilla, Interim City Attorney

Attachment: Ordinance No. XXXX (6434 : Gateway Heights Tract 38459)

ORDINANCE JURAT

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

I, Jane Halstead, City Clerk of the City of Moreno Valley, California, do hereby certify that Ordinance No. XXX was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the 5th day of December, 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

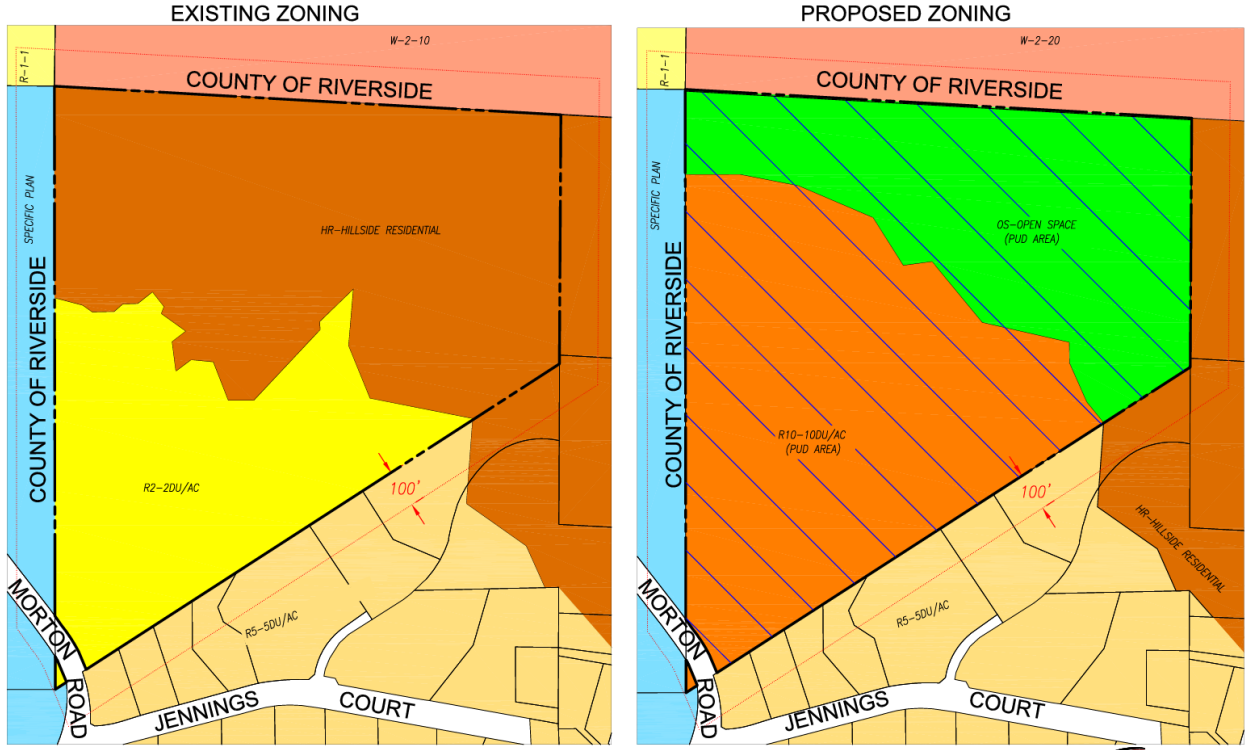
CITY CLERK

(SEAL)

Attachment: Ordinance No. XXXX (6434 : Gateway Heights Tract 38459)

EXHIBIT A

Existing and Proposed Zoning Map



ZONING MAP

GATEWAY HEIGHTS

CITY OF MORENO VALLEY, CALIFORNIA

SCALE: 1" = 200'



APPENDIX B

Attachment: Ordinance No. XXXX (6434 : Gateway Heights Tract 38459)

RESOLUTION NUMBER 2023-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING GENERAL PLAN AMENDMENT (PEN20-0095), TO AMEND THE GENERAL PLAN LAND USE MAP, CHANGING THE LAND USE DESIGNATION FROM RESIDENTIAL 2 (R2) AND HILLSIDE RESIDENTIAL (HR) TO RESIDENTIAL 10 (R10) AND PARKS/OPEN SPACE (OS), CONDITIONAL USE PERMIT (PEN21-0066) FOR A PLANNED UNIT DEVELOPMENT, AND TENTATIVE TRACT MAP NO. 38459 (PEN22-0127) FOR THE DEVELOPMENT OF A 108-UNIT TOWNHOUSE CONDOMINIUM

WHEREAS, the City of Moreno Valley (“City”) is a general law city and a municipal corporation of the State of California; and has the authority to approve amendments to the City’s General Plan and City’s Zoning Atlas; and

WHEREAS, HengHou Group (“Applicant”) is seeking approval for the Gateway Heights Residential Project, which includes approval of General Plan Amendment (PEN20-0095), Conditional Use Permit (PEN21-0066) and Tentative Tract Map 38459 (PEN22-0127) for the development of a 108-unit detached townhouse condominium Planned Unit Development on 32.56-acres, with associated amenities and public improvements (“Proposed Project”) located on the east side of Morton Road, approximately 300 feet north of Jennings Court (APN 256-150-001) (“Project Site”); and

WHEREAS, Section 9.02.060 (Conditional Use Permits) of the Municipal Code acknowledges that the purpose of a conditional use permit is to allow the establishment of uses that may have special impacts or uniqueness such that their effect on the surrounding environment cannot be determined in advance of the use being proposed for a particular location and that the conditional use permit application process involves the review of the location, design, and configuration of improvements related to the Proposed Project, and the potential impact of the Proposed Project on the surrounding area based on fixed and established standards; and

WHEREAS, Chapter 9.14 (Land Division) of the Moreno Valley Municipal Code imposes conditions of approval upon projects for which a Tentative Tract Map is required, which conditions may be imposed by the City to address on-site improvements, off-site improvements, the manner in which the Project Site is used, and any other conditions as may be deemed necessary to protect the public health, safety, and welfare and ensure that the Proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, the applications for the Proposed Project have been evaluated in accordance with Section 9.02.060 (Conditional Use Permits) and Chapter 9.14 (Land Divisions), respectively, of the Municipal Code with consideration given to the City’s General Plan, Zoning Ordinance, and other applicable laws and regulations; and

WHEREAS, on June 8, 2023, a public hearing to consider the Proposed Project was duly conducted by the Planning Commission, at which time all interested persons

were provided with an opportunity to testify and present evidence; and

WHEREAS, on June 8, 2023, a public hearing was conducted by the Planning Commission to consider General Plan Amendment (PEN20-0095), after which the Planning Commission approved Planning Commission Resolution 2023-23, a recommendation that the City Council approve General Plan Amendment (PEN20- 0095); and

WHEREAS, on June 8, 2023, a public hearing was conducted by the Planning Commission to consider Conditional Use Permit (PEN21-0066) and Tentative Tract Map 38459 (PEN22-0127), whereby the Planning Commission approved Planning Commission Resolution 2023-26, a recommendation that the City Council approve Conditional Use Permit (PEN21-0066) and Tentative Tract Map 38237 (PEN22-0127); and

WHEREAS, on June 8, 2023, a hearing was conducted by the Planning Commission whereby the Planning Commission approved Planning Commission Resolution No. 2023-22, recommending the City Council approve the Mitigated Negative Declaration/Initial Study, Mitigation Monitoring and Reporting Program, and Proposed Project; and

WHEREAS, pursuant to the provisions of Section 9.02.200 (Public Hearing and Notification Procedures) of the Municipal Code and Government Code section 65905, a public hearing was scheduled for September 5, 2023, before the City Council and notice thereof was duly published and posted, and mailed to all property owners of record with 600 feet of the Site; and

WHEREAS, on September 5, 2023, the public hearing to consider the Proposed Project was duly conducted by the City Council. At said hearing, the City Council continued the consideration of the Proposed Project to a future date; and

WHEREAS, on December 5, 2023, the public hearing to consider the Proposed Project was duly conducted by the City Council at which time all interested persons were provided with an opportunity to testify and to present evidence; and

WHEREAS, on December 5, 2022, in accordance with the provisions of the California Environmental Quality Act (CEQA) and CEQA Guidelines, the City Council considered and approved Resolution 2023-__ certifying the Proposed Project's Mitigated Negative Declaration, and adopting a Mitigation Monitoring and Reporting Program.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals and Exhibits

That the foregoing Recitals and attached Exhibits are true and correct and are hereby incorporated by this reference.

Section 2. Notice

That pursuant to Government Code section 66020(d)(1), notice is hereby given that the Proposed Project is subject to certain fees, dedications, reservations and other exactions as provided herein, in the staff report and conditions of approval (collectively, "Conditions"); and these Conditions constitute written notice of a statement of the amount of such fees, and a description of the dedications, reservations, and other exactions, and interested parties have ninety-days from the approval of this Resolution to protest these fees, dedications, reservations, and other exactions, pursuant to Government Code Section 66020(a).

Section 3. Evidence

That the City Council has considered all of the evidence submitted into the administrative record for the General Plan Amendment, including, but not limited to, the following:

- (a) Moreno Valley General Plan and all relevant provisions contained therein;
- (b) Title 9 (Planning and Zoning) of the Moreno Valley Municipal Code and all other relevant provisions referenced therein;
- (c) The Moreno Valley General Plan amendment changing the land use designation from Residential 2 (R2) and Hillside Residential (HR) to Residential 10 (R10) and Parks/Open Space (OS) and all relevant provisions contained therein as shown on Exhibit A;
- (d) Applications for the approval of a General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096), Tentative Tract Map 38459 (PEN22-0127), and Conditional Use Permit (PEN21-0066), and all documents, records and references contained therein;
- (e) Testimony, comments, and correspondence from all persons that were provided at, or prior to, the June 8, 2023, Planning Commission public hearing;
- (f) Planning Commission Resolution No. 2023-22, recommending that the City Council certify and approve the Initial Study/Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, and approve the Proposed Project;
- (g) Staff Report prepared for the City Council's consideration and all documents, records, and references related thereto, and Staff's presentation at the September 5, 2023, public hearing; and
- (h) Testimony, comments, and correspondence from all persons that were provided at, or prior to, the City Council September 5, 2023, and the December 5, 2023, public hearing.

Section 4. Findings

That based on the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the City Council makes the following findings:

- (a) That the Proposed Project is consistent with the existing goals, objectives, policies, and programs of the General Plan;

- (b) That the Proposed Project will not adversely affect the public health, safety, or general welfare;
- (c) That the Proposed Project is consistent with the purposes and intent of Title 9;
- (d) That the Proposed Project complies with all applicable zoning and other regulations;
- (e) The location, design, and operation of the Proposed Project will be compatible with existing and planned land uses in the vicinity;
- (f) That the design or improvement of the proposed subdivision is consistent with applicable general and specific plans
- (g) That the Project Site is physically suitable for the type of development;
- (h) That the Project Site of the proposed land division is physically suitable for the proposed density of the development;
- (i) That the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife and/or their habitat;
- (j) That the design of the Proposed Project and the proposed improvements is not likely to cause serious public health problems;
- (k) That the design of the subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision;
- (l) That the requirements of CEQA have been satisfied;
- (m) That the proposed land division is not subject to the Williamson Act pursuant to the California Land Conservation Act of 1965;
- (n) That the proposed land division and the associated design and improvements are consistent with applicable ordinances of the city;
- (o) That the design of the land division provides, to the extent feasible, for future passive or natural heating and cooling opportunities in the subdivision; and
- (p) That the effect of the Proposed Project on the housing needs of the region were considered and balanced against the public service needs of the residents of Moreno Valley and available fiscal and environmental resources

Section 5. Approval

That based on the foregoing Recitals, Evidence, and Findings, the City Council hereby approves the Proposed Project, which includes General Plan Amendment (PEN20-0095) as depicted in Exhibit A, and the necessary and corresponding amendment to the City's Zoning Atlas, Conditional Use Permit (PEN21-0066) and Tentative Tract Map 38459 (PEN22-0127), attached hereto as Exhibit B.

Section 6. Repeal of Conflicting Provisions

That all the provisions as heretofore adopted by the City Council that are in conflict with the provisions of this Resolution are hereby repealed.

Section 7. Severability

That the City Council declares that, should any provision, section, paragraph,

sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 8. Effective Date

That this Resolution shall take effect immediately upon the date of adoption.

Section 9. Certification

That the City Clerk shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS 5th day of December 2023.

Ulises Cabrera, Mayor

ATTEST:

Jane Halstead, City Clerk

APPROVED AS TO FORM:

Steven B. Quintanilla, Interim City Attorney

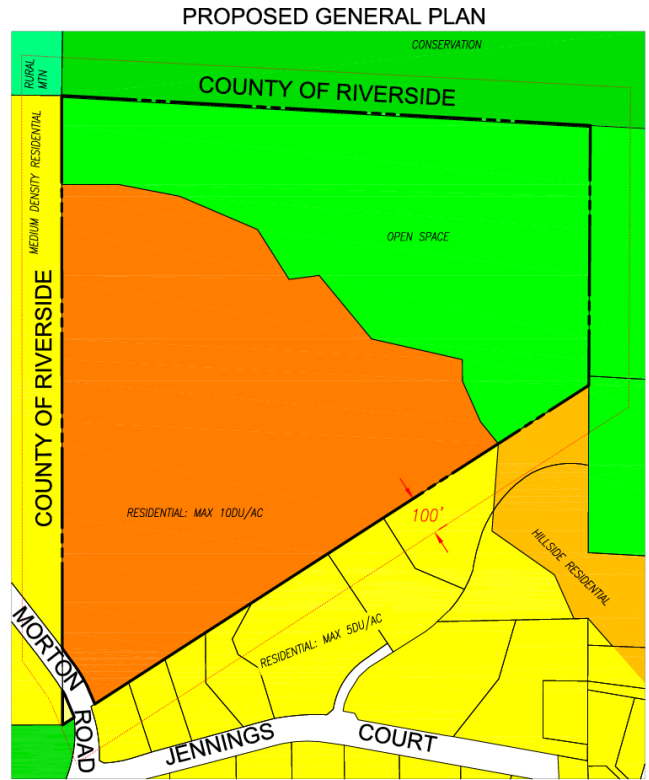
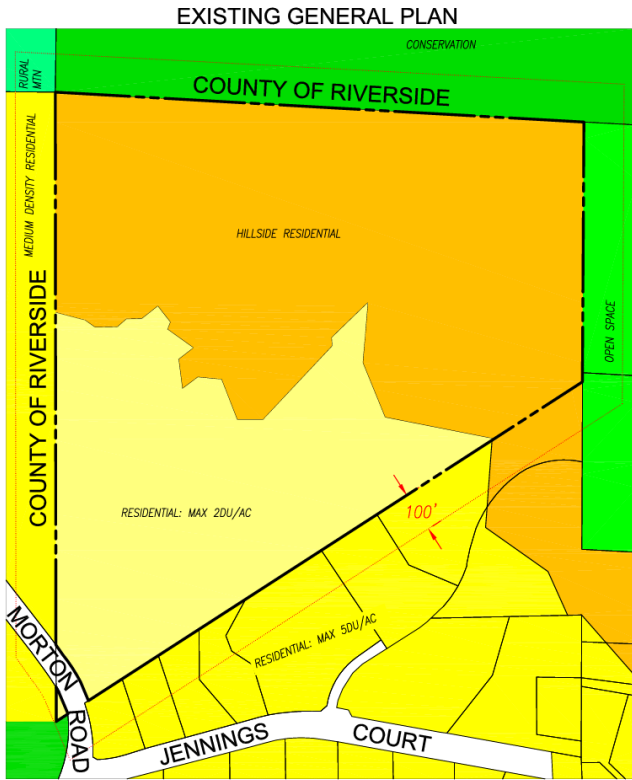
Exhibits:

Exhibit A: General Plan Amendment Land Use Exhibit

Exhibit B: Conditional Use Permit (PEN21-0066) and Tentative Tract Map 38459
(PEN22-0127) Conditions of Approval

Attachment: Resolution No. 2023-XX General Plan Amendment_CUP_Map (6434 : Gateway Heights Tract 38459)

Exhibit A General Plan Amendment



GENERAL PLAN MAP
GATEWAY HEIGHTS

CITY OF MORENO VALLEY, CALIFORNIA

SCALE: 1" = 200'



APPENDIX A

Attachment: Resolution No. 2023-XX General Plan Amendment_CUP_Map (6434 : Gateway Heights Tract 38459)

Exhibit B

**Conditional Use Permit (PEN21-0066) and Tentative Tract Map 38459
(PEN22-0127) Conditions of Approval**

Attachment: Resolution No. 2023-XX General Plan Amendment_CUP_Map (6434 : Gateway Heights Tract 38459)

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN21-0066)

Tentative Tract Map No. 38459 (PEN22-0127)

Page 1

CITY OF MORENO VALLEY
 CONDITIONS OF APPROVAL
 Conditional Use Permit (PEN21-0066)
 Tentative Tract Map No. 38459 (PEN22-0127)

EFFECTIVE DATE:

EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT**Planning Division**

1. This approval is for Conditional Use Permit (PEN22-0066) for a Planned Unit Development to address development standards for Tentative Tract Map 38459 (PEN22-0127), a subdivision of approximately 32.56 acres of vacant land into an approximate 16.59-acre common-area lot with 108 air space parcels for condominium purposes with a public park, and an approximate 15.97-acre remainder open-space lot, including development standards and design criteria for the construction of new homes and public amenities. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.
2. The Homeowners Association, developer, or the developer's successor-in-interest shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust.
3. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion.
4. The Developer shall defend, indemnify and hold harmless the City, city council, commissions, boards, subcommittees and the City's elected and appointed officials, commissioners, board members, officers, agents, consultants and employees ("City Parties") from and against any and all liabilities, demands, claims, actions or proceedings and costs and expenses incidental thereto (including costs of defense, settlement and reasonable attorneys' fees), which any or all of them may suffer, incur, be responsible for or pay out as a result of or in connection with any challenge to the legality, validity or adequacy of any of the following items: (i) any prior or current agreements by and among the City and the Developer; (ii) the current, concurrent and subsequent permits, licenses and entitlements approved by the City; (iii) any environmental determination made by the City in connection with

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN21-0066)

Tentative Tract Map No. 38459 (PEN22-0127)

Page 2

the Project Site and the Project; and (iv) any proceedings or other actions undertaken by the City in connection with the adoption or approval of any of the above. In the event of any administrative, legal, equitable action or other proceeding instituted by any third party (including without limitation a governmental entity or official) challenging the legality, validity or adequacy of any of the above items or any portion thereof, the Parties shall mutually cooperate with each other in defense of said action or proceeding. Notwithstanding the above, the City, at its sole option, may tender the complete defense of any third party challenge as described herein. In the event the City elects to contract with special counsel to provide for such a defense, the City shall meet and confer with the Developer regarding the selection of counsel, and the Developer shall pay all costs related to retention of such counsel by the City.

5. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris.
6. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, Gateway Heights PUD, and the conditions contained herein. Prior to any use of the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official.
7. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag), require separate application and approval by the Planning Division.
8. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.

Special Conditions

9. Prior to grading permits, the developer or successor in interest shall submit a wall and fence plan showing basin fencing, to include wrought iron fencing with pilasters.
10. Prior to approval of the first certificate of occupancy for a townhouse unit, a basin maintained by an HOA or other private entity, landscape (trees, shrubs and groundcover) and irrigation shall be installed, and maintained by the HOA or other private entity with documentation provided to the Planning Division.
11. Prior to issuance of grading permits, colors and materials for exterior building materials including roofing, fences/walls, etc., shall be submitted to and approved by the Planning Division as this project is adjacent to a Hillside Residential land use

CONDITIONS OF APPROVAL

Conditional Use Permit (PEN21-0066)

Tentative Tract Map No. 38459 (PEN22-0127)

Page 3

designation. All exterior colors and building materials shall be consistent with the Gateway Heights PUD and shall blend with the surrounding natural environment.

12. The grading plans shall show the open space lot to be preserved, and any conservation easement lots.
13. A drought tolerant landscape palette shall be utilized throughout the tract in compliance with the City's Landscape Requirements, the Gateway Heights PUD document, and the Preliminary and Final Fuel Modification / Vegetation Control Plan.
14. Prior to any site disturbance and/or grading plan submittal, or prior to the recordation of a final map, a mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant/owner. No City permit or approval shall be issued until such fee is paid. (CEQA)
15. Prior to recordation of the final subdivision map, the following documents shall be submitted to and approved by the Planning Division which shall demonstrate that the project will be developed and maintained in accordance with the intent and purpose of the approval:
 1. The document to convey title
 2. Deed restrictions, easements, or Covenants, Conditions and Restrictions to be recorded

The approved documents shall be recorded at the same time that the subdivision map is recorded. The documents shall contain provisions for general maintenance of the site, joint access to proposed parcels, open space use restrictions, conservation easements, guest parking, feeder trails, water quality basins, lighting, landscaping and common area use items such as general building maintenance (condominium townhomes) public park amenities and other recreation facilities. The approved documents shall also contain a provision, which provides that they may not be terminated and/or substantially amended without the consent of the City and the developer's successor-in-interest.

In addition, the following deed restrictions and disclosures shall be included within the document and grant deed of the properties:

a. The developer and homeowners association shall promote the use of native plants and trees and drought tolerant species.

b. All lots designated for open space and or detention basins, shall be included as an easement to, and maintained by a Homeowners Association (HOA) or other

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public or private maintenance entity. Language to this effect shall be included and reviewed within the required Covenant Conditions and Restrictions (CC&Rs) prior to the approval of the final map.

- c. Maintenance of any and all common facilities.
 - d. A conservation easement for lettered lots shall be recorded on the deed of the property and shown on the final map.
16. Prior to the issuance of building permits, the developer shall provide documentation that contact was made to the U.S. Postal Service to determine the appropriate type and location of mailboxes.
 17. Prior to grading plan approval, wall and fence plans shall be submitted to and approved by the Planning Division subject to the City's Municipal Code including the following:
 - a. Perimeter fencing shall be constructed of decorative masonry with pilasters and wrought iron.
 - b. Galvanized steel rock garden walls may be used for private patio spaces at each townhome.
 - c. Non-combustible fencing is required for all lots adjacent to all fuel modification zones, subject to the approval of the Fire Department.
 18. Prior to the issuance of any grading permits, the owner/developer or successor in interest shall record a deed restriction on the subject site, affecting all riverine features and buffer areas of the site stating that no fuel modification activities will be allowed within any riverine features. The deed restriction shall further state that fuel modification maintenance activities that occur in the buffer areas around, but not overlapping, the riverine features, may be done using only hand tools and no native plant species may be removed. The owner/developer shall acknowledge that the intention of this deed restriction / restrictive covenant shall be binding upon all future owners, successors and heirs to the subject property. A public disclosure notice/ statement describing the above deed restriction shall be recorded on the title of all subsequently-subdivided land parcels and air parcels created for the development of a detached townhouse condominium development.
 19. In accordance with Developer's obligation to defend, indemnify and hold harmless the City, including but not limited to as set forth in more detail in the Project's Conditions of Approval, Moreno Valley Municipal Code Section 9.02.310 (Indemnification of City for Discretionary Approvals), and the Project application, Developer shall enter into an Advanced Funding Agreement with the City no later

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than ten (10) calendar days from Planning Commission's approval of the Project. A copy of said Agreement is on file with the Community Development Director.

Prior to Grading Permit

20. Prior to the issuance of grading permits, the site plan and grading plans shall show decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the design, color and materials of the proposed development for all driveway ingress/egress locations of the project.
21. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be printed on the grading plans.
22. Prior to issuance of any grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein. A mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant within 30 days of project approval. No City permit or approval shall be issued until such fee is paid. (CEQA)
23. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be printed on the building plans.
24. Prior to issuance of any building permits, final Landscaping and Irrigation Plans, and Final Fuel Modification/ Vegetation Control Plans, shall be submitted for review and approval by the Planning Division and Fire Department. After the third plan check review for landscape plans, an additional plan check fee shall apply. The plans shall be prepared in accordance with the City's Landscape Requirements and shall include:
 - a. Drought tolerant landscape shall be used. Sod shall be limited to common open space gathering areas.
 - b. Street trees shall be provided every 40 feet on center in the right of way, subject to approval by the Fire Department.
 - c. Enhanced landscaping shall be provided at all driveway entries and street corner locations. The review of all utility boxes, transformers etc. shall be coordinated to provide adequate screening from public view.
 - d. All site perimeter landscape and irrigation shall be installed prior to the release of certificate of any occupancy permits for the townhouse cluster pad in

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question.

Building Division

25. Prior to submittal, all new development, including residential second units, are required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.
26. Contact the Building Safety Division for permit application submittal requirements.
27. Any construction within the city shall only be as follows: Monday through Friday seven a.m. to seven p.m.(except for holidays which occur on weekdays), eight a.m. to four p.m.; weekends and holidays (as observed by the city and described in the Moreno Valley Municipal Code Chapter 2.55), unless written approval is first obtained from the Building Official or City Engineer.
28. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.
29. The proposed development shall be subject to the payment of required development fees as required by the City's current Fee Ordinance at the time a building application is submitted or prior to the issuance of permits as determined by the City.
30. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.
31. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc.
32. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.
33. The proposed residential project shall comply with the California Green Building Standards Code, Section 4.106.4, mandatory requirements for Electric Vehicle Charging Station (EVCS).
34. Prior to permit issuance, every applicant shall submit a properly completed Waste

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Management Plan (WMP), as a portion of the building or demolition permit process.
(MC 8.80.030)

FIRE DEPARTMENT**Fire Prevention Bureau**

35. All Fire Department access roads or driveways shall not exceed 12 percent grade. (CFC 503.2.7 and MVMC 8.36.060[G])
36. The Fire Department emergency vehicular access road shall be (all weather surface) capable of sustaining an imposed load of 80,000 lbs. GVW, based on street standards approved by the Public Works Director and the Fire Prevention Bureau. The approved fire access road shall be in place during the time of construction. Temporary fire access roads shall be approved by the Fire Prevention Bureau. (CFC 501.4, and MV City Standard Engineering Plan 108d)
37. The angle of approach and departure for any means of Fire Department access shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m), and the design limitations of the fire apparatus of the Fire Department shall be subject to approval by the AHJ. (CFC 503 and MVMC 8.36.060)
38. Prior to construction, all locations where structures are to be built shall have an approved Fire Department access based on street standards approved by the Public Works Director and the Fire Prevention Bureau. (CFC 501.4)
39. Prior to issuance of Building Permits, the applicant/developer shall provide the Fire Prevention Bureau with an approved site plan for Fire Lanes and signage. (CFC 501.3)
40. Prior to issuance of Certificate of Occupancy or Building Final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations in accordance with City specifications. (CFC 509.1 and MVLT 440A-0 through MVLT 440C-0)
41. Prior to issuance of building permits, plans specifying the required structural materials for building construction in high fire hazard severity zones shall be submitted to the Fire Prevention Bureau for approval. (CFC, 4905)
42. Prior to issuance of Certificate of Occupancy or Building Final, all buildings shall display street numbers in a prominent location on the street side and rear access locations. The numerals shall be a minimum of twelve inches in height. (CFC 505.1, MVMC 8.36.060[I])
43. Existing fire hydrants on public streets are allowed to be considered available.

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- Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads. (CFC 507, 501.3) a - After the local water company signs the plans, the originals shall be presented to the Fire Prevention Bureau for signatures. The required water system, including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.
44. Final fire and life safety conditions will be addressed when the Fire Prevention Bureau reviews building plans. These conditions will be based on occupancy, use, California Building Code (CBC), California Fire Code (CFC), and related codes, which are in effect at the time of building plan submittal.
 45. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)
 46. Prior to issuance of Building Permits, the applicant/developer shall participate in the Fire Impact Mitigation Program. (Fee Resolution as adopted by City Council)
 47. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty-four (24) feet and an unobstructed vertical clearance of not less than thirteen (13) feet six (6) inches. (CFC 503.2.1 and MVMC 8.36.060[E])
 48. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire sprinkler system based on square footage and type of construction, occupancy or use. Fire sprinkler plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9, MVMC 8.36.100[D])
 49. Prior to issuance of the building permit for development, independent paved access to the nearest paved road, maintained by the City shall be designed and constructed by the developer within the public right of way in accordance with City Standards. (MVMC 8.36.060, CFC 501.4)
 50. Prior to issuance of a Certificate of Occupancy or Building Final, a "Knox Box Rapid Entry System" shall be provided. The Knox-Box shall be installed in an accessible location approved by the Fire Code Official. All exterior security emergency access gates shall be electronically operated and be provided with Knox key switches for access by emergency personnel. (CFC 506.1)
 51. The minimum number of fire hydrants required, as well as the location and spacing of fire hydrants, shall comply with the C.F.C., MVMC, and NFPA 24. Fire hydrants shall be located no closer than 40 feet to a building. A fire hydrant shall be located within 50 feet of the fire department connection for buildings protected with a fire

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- sprinkler system. The size and number of outlets required for the approved fire hydrants are (6" x 4" x 2 ½" x 2 ½") (CFC 507.5.1, 507.5.7, Appendix C, NFPA 24-7.2.3, MVMC 912.2.1)
52. Fire Department access driveways over 150 feet in length shall have a turn-around as determined by the Fire Prevention Bureau capable of accommodating fire apparatus. (CFC 503 and MVMC 8.36.060, CFC 501.4)
 53. During phased construction, dead end roadways and streets which have not been completed shall have a turn-around capable of accommodating fire apparatus. (CFC 503.1 and 503.2.5)
 54. If construction is phased, each phase shall provide an approved emergency vehicular access way for fire protection prior to any building construction. (CFC 501.4)
 55. Preliminary fuel modification plans shall be reviewed and approved by the fire code official concurrent with the submittal for approval of any tentative map. Final fuel modification plans shall be submitted to and approved by the fire code official prior to the issuance of a grading permit.
 56. Prior to issuance of Building Permits, plans for structural protection from vegetation fires shall be submitted to the Fire Prevention Bureau for review and approval. Measures shall include, but are not limited to: noncombustible barriers (cement or block walls), fuel modification zones, etc. (CFC Chapter 49)
 57. Plans for private water mains supplying fire sprinkler systems and/or private fire hydrants shall be submitted to the Fire Prevention Bureau for approval. (CFC 105 and CFC 3312.1)
 58. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all buildings per CFC Appendix B and Table B105.1. The applicant/developer shall provide documentation to show there exists a water system capable of delivering said waterflow for 2 hour(s) duration at 20-PSI residual operating pressure. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. Specific requirements for the project will be determined at time of submittal. (CFC 507.3, Appendix B)
 59. Prior to issuance of Certificate of Occupancy or Building Final, all residential dwellings shall display street numbers in a prominent location on the street side of the residence in such a position that the numbers are easily visible to approaching emergency vehicles. The numbers shall be located consistently on each dwelling throughout the development. The numerals shall be no less than four (4) inches in height and shall be low voltage lighted fixtures. (CFC 505.1, MVMC 8.36.060[1])

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60. Single Family Dwellings. Schedule "A" fire prevention approved standard fire hydrants (6" x 4" x 2 ½") shall be located at each intersection of all residential streets. Hydrants shall be spaced no more than 500 feet apart in any direction so that no point on the street is more than 250 feet from a hydrant. Minimum fire flow shall be 1000 GPM for 1 hour duration of 20 PSI. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, serving one and two-family residential developments, standard fire hydrants shall be provided at spacing not to exceed 1000 feet along the tract boundary for transportation hazards. (CFC 507.3, Appendix B, MVMC 8.36.060).
61. Final Fire Protection Fuel Modification Plan shall be submitted, reviewed, and approved before the submittal of Building Plans to the City of Moreno Valley's Planning and Fire Departments. Fuel Modification Plan's implementation and installation shall be in place before occupancy is granted for first dwelling unit.
62. Fuel Modification Maintenance shall be delineated by providing legal binding statement in community's CC&Rs specifying the community's responsibility, covenants, and conditions for maintenance of fuel modification zones and vegetation. Such document(s) shall be provided for review to the Fire Prevention Bureau and Land Development before the recordation of the final tract map.
63. Dead-end streets and/or fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround for fire apparatus.
64. Prior to building construction, dead end roadways and streets which have not been completed shall have a turnaround capable of accommodating fire apparatus. (CFC 503.2.5)
65. Prior to issuance of Building Permits, the applicant/developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for review. Plans shall:
 - a. Be signed by a registered civil engineer or a certified fire protection engineer;
 - b. Contain a Fire Prevention Bureau approval signature block; and
 - c. Conform to hydrant type, location, spacing of new and existing hydrants and minimum fire flow required as determined by the Fire Prevention Bureau. The required water system, including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

FINANCIAL & MANAGEMENT SERVICES DEPARTMENTMoreno Valley Utility

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66. This project shall coordinate and receive approval from the City Engineer to install, construct, improve, and dedicate to Moreno Valley Utility electric streetlight improvements consisting of streetlight poles, mast-arms, fixtures conduit, wiring, terminations and pull boxes to serve the identified development and other adjoining, abutting, or benefiting projects as determined by the Land Development Department along with any appurtenant real property easements, as determined by the City Engineer to be necessary for the distribution and/or delivery of any and all “street light services” to and within the project.
67. This project shall coordinate and receive approval from the City Engineer to install, construct, improve, and dedicate to Moreno Valley Utility fiber optic cable improvements consisting of conduit, and pull boxes to serve the identified development and other adjoining, abutting, or benefiting projects as determined by Moreno Valley Utility along with any appurtenant real property easements, as determined by the City Engineer to be necessary for the distribution and/or delivery of any and all “fiber optic services” to and within the project.

PUBLIC WORKS DEPARTMENT**Land Development**

68. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, shall be required prior to 90% security reduction or the end of the one-year warranty period of the public streets as approved by the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.
69. The developer shall comply with all applicable City ordinances and resolutions including the City’s Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]
70. The final approved conditions of approval (COAs) issued and any applicable Mitigation Measures by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.
71. The developer shall monitor, supervise and control all construction related activities,

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so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:

- (a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
- (b) Observance of working hours as stipulated on permits issued by the Land Development Division.
- (c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
- (d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.

Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

- 72. Drainage facilities (e.g., catch basins, water quality basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.
- 73. In the event right-of-way or offsite easements are required to construct offsite improvements necessary for the orderly development of the surrounding area to meet the public health and safety needs, the developer shall make a good faith effort to acquire the needed right-of-way in accordance with the Land Development Division's administrative policy. If unsuccessful, the Developer shall enter into an agreement with the City to acquire the necessary right-of-way or offsite easements and complete the improvements at such time the City acquires the right-of-way or offsite easements which will permit the improvements to be made. The developer shall be responsible for all costs associated with the right-of-way or easement acquisition. [GC 66462.5]
- 74. If improvements associated with this project are not initiated within two (2) years of the date of approval of the Public Improvement Agreement (PIA), the City Engineer may require that the engineer's estimate for improvements associated with the project be modified to reflect current City construction costs in effect at the time of request for an extension of time for the PIA or issuance of a permit. [MC 9.14.210(B)(C)]
- 75. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

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76. The maintenance responsibility of the proposed storm drain line shall be clearly identified. Storm drain lines within private property will be privately maintained and those within public streets will be publicly maintained.
77. The proposed private storm drain system shall connect to the proposed West End Moreno Valley Master Drainage Plan (MDP) Line B, which is preliminarily designed to be two 3' X 6' RCB culverts. A storm drain manhole shall be placed at the right-of-way line to mark the beginning of the publicly maintained portion of this storm drain.
78. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:
- a. Tract Map (recordation prior to building permit issuance);
 - b. Rough grading w/ erosion control plan (prior to grading permit issuance);
 - c. Precise grading w/ erosion control plan (prior to grading permit issuance);
 - d. Public Improvement plan (e.g., street / storm drain with striping, RCFC storm drain, sewer / water, etc.) (prior to encroachment permit issuance);
 - e. Final drainage study (prior to grading plan approval);
 - f. Final WQMP (prior to grading plan approval);
 - g. Easements, dedications, vacations, etc. (prior to map approval);
 - h. As-Built revision for all plans (prior to Occupancy release).
79. Water quality best management practices (BMPs) designed to meet Water Quality Management Plan (WQMP) requirements for development shall not be used as a construction BMP. Water quality BMPs shall be maintained for the entire duration of the project construction and be used to treat runoff from those developed portions of the project. Water quality BMPs shall be protected from upstream construction related runoff by having proper best management practices in place and maintained. Water quality BMPs shall be graded per the approved design plans and once landscaping and irrigation has been installed. If residential, it and its maintenance shall be turned over to an established Homeowner's Association (HOA).

Prior to Grading Plan Approval

80. Resolution of all drainage issues shall be as approved by the City Engineer.
81. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as

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hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

82. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.
83. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:
- a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;
 - b. Incorporates Source Control BMPs and provides a detailed description of their implementation;
 - c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and
 - d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.

A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

84. The final project-specific Water Quality Management Plan (WQMP) shall be consistent with the approved P-WQMP, as well as in full conformance with the document: "Water Quality Management Plan - A Guidance Document for the Santa Ana Region of Riverside County" dated October 22, 2012. The F-WQMP shall be submitted and approved prior to application for and issuance of grading permits. At a minimum, the F-WQMP shall include the following: Site Design BMPs; Source Control BMPs, Treatment Control BMPs, Operation and Maintenance requirements for BMPs and sources of funding for BMP implementation.
- a. The Applicant has proposed to incorporate the use of bioretention. Final design and sizing details of all BMPs must be provided in the first submittal of the F-WQMP. The Applicant acknowledges that more area than currently shown on the plans may be required to treat site runoff as required by the WQMP guidance document.
 - b. The Applicant shall substantiate the applicable Hydrologic Condition of Concerns (HCOC) in Section F of the F-WQMP.
 - c. All proposed LID BMP's shall be designed in accordance with the RCFC&WCD's Design Handbook for Low Impact Development Best Management Practices, dated September 2011.
 - d. The proposed LID BMP's as identified in the project-specific P-WQMP shall

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be incorporated into the Final WQMP.

e. The NPDES notes per City Standard Drawing No. MVFE-350-0 shall be included in the grading plans.

f. Post-construction treatment control BMPs, once placed into operation for post-construction water quality control, shall not be used to treat runoff from construction sites or unstabilized areas of the site.

85. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:

a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.

b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.

c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.

d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

86. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

87. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.

88. The developer shall submit recorded slope easements from adjacent property owners in all areas where grading resulting in slopes is proposed to take place outside of the project boundaries. For all other offsite grading, written permission from adjacent property owners shall be submitted.

89. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

90. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be

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noted on the grading plans.

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91. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC 9.14.100(O)]
92. If the developer chooses to construct the project in phases, a Construction Phasing Plan for the construction of on-site public or private improvements shall be submitted for review and approved by the City Engineer.
93. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]
94. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]
95. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

Prior to Map Approval

96. All proposed street names shall be submitted for review and approved by the City Engineer, if applicable. [MC 9.14.090(E.2.k)]
97. A copy of the Covenants, Conditions and Restrictions (CC&R's) shall be submitted for review and approved by the City Engineer. The CC&R's shall include, but not be limited to, access easements, reciprocal access, private and/or public utility easements as may be relevant to the project. In addition, for single-family residential development, bylaws and articles of incorporation shall also be included as part of the maintenance agreement for any water quality BMPs.
98. After recordation, a digital (pdf) copy of the recorded map shall be submitted to the Land Development Division.
99. Resolution of all drainage issues shall be as approved by the City Engineer.
100. If the project involves the subdivision of land, maps may be developed in phases with the approval of the City Engineer. Financial security shall be provided for all public improvements associated with each phase of the map. The boundaries of

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any multiple map increment shall be subject to the approval of the City Engineer. If the project does not involve the subdivision of land and it is necessary to dedicate right-of-way/easements, the developer shall make the appropriate offer of dedication by separate instrument. In either case, the City Engineer may require the dedication and construction of necessary utility, street or other improvements beyond the project boundary, if the improvements are needed for circulation, parking, access, or for the welfare or safety of the public. This approval must be obtained prior to the Developer submitting a Phasing Plan to the California Bureau of Real Estate. [MC 9.14.080(B)(C), GC 66412 & 66462.5]

101. Maps (prepared by a registered civil engineer and/or licensed surveyor) shall be submitted for review and approved by the City Engineer per the current submittal requirements.
102. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project shall establish a Home Owners Association (HOA) to finance the maintenance of the "Water Quality BMPs". Any lots which are identified as "Water Quality BMPs" shall be owned in fee by the HOA.
103. The developer shall guarantee the completion of all related improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]
104. All public improvement plans required for this project shall be approved by the City Engineer in order to execute the Public Improvement Agreement (PIA).
105. All street dedications shall be free of all encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

Prior to Improvement Plan Approval

106. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.
107. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.
108. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

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109. The design plan and profile shall be based upon a centerline, extending beyond the project boundaries a minimum distance of 300 feet at a grade and alignment approved by the City Engineer.
110. Drainage facilities (i.e. catch basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.
111. The hydrology study shall be designed to accept and properly convey all off-site drainage flowing onto or through the site. In the event that the City Engineer permits the use of streets for drainage purposes, the provisions of current City standards shall apply. Should the quantities exceed the street capacity or the use of streets be prohibited for drainage purposes, as in the case where one travel lane in each direction shall not be used for drainage conveyance for emergency vehicle access on streets classified as minor arterials and greater, the developer shall provide adequate facilities as approved by the City Engineer. [MC 9.14.110 A.2]
112. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.
113. Any missing or deficient existing improvements along the project frontage shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement to half-street width plus 18 feet or provide core test results confirming that existing pavement section is per current City Standards; additional signing & striping to accommodate increased traffic imposed by the development, etc.
114. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.
115. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.
116. Prior to improvement plan approval, pavement core samples of existing pavement shall be taken and findings submitted to the City for review and consideration of

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pavement improvements. The City will determine the adequacy of the existing pavement structural section. If the existing pavement structural section is found to be adequate, the developer may still be required to perform a 2 inch grind and overlay or slurry seal, depending on the severity of existing pavement cracking, as required by the City Engineer. If the existing pavement section is found to be inadequate, the Developer shall replace the pavement to meet or exceed the City's pavement structural section standard.

Prior to Encroachment Permit

117. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.
118. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.
119. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

120. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.
121. For all subdivision projects, the map shall be recorded (excluding model homes). [MC 9.14.190]
122. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including ADA access ramps that do not meet current City standards shall be required to be installed, replaced and/or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.
123. Certification to the line, grade, flow test and system invert elevations for the water

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quality control BMPs shall be submitted for review and approved by the City Engineer (excluding models homes).

124. Prior to building permit issuance, the developer shall dedicate the following right of way to accommodate the required improvements:
- (a) The necessary street right of way dedication on the east side of Morton Road (60' R/W / 36' CC: Local Street, City Standard No. MVSI-107A-0 (Modified)) along the project frontage.
 - (b) The necessary street right of way dedication on the west side of Morton Road (60' R/W / 36' CC: Local Street, City Standard No. MVSI-107A-0 (Modified)) for transition, alignment, and/or drainage purposes.
 - (c) A 4 foot minimum pedestrian right of way dedication behind any driveway approach per City Standard No. MVSI-112C-0 on Morton Road, as applicable.
 - (d) Corner cutback right of way dedication per City Standard No. MVSI-165-0 on all intersecting public streets, as directed by the City Engineer.

Prior to Occupancy

125. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.
126. The final/precise grade certification shall be submitted for review and approved by the City Engineer.
127. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:
- a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights (SCE: LS-2), signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.
 - b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.
 - c. City-owned utilities.
 - d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.
128. A "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant", "Maintenance Agreement for Water Quality Improvements located in the public right-of-way" and a "Declaration of Restrictive Covenants (encroachment on City easement)" shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A

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boilerplate copy of the covenants and agreements can be obtained by contacting the Land Development Division.

129. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:
- a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).
 - b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.
130. The Developer shall comply with the following water quality related items:
- a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.
 - b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;
 - c. Demonstrate that Developer is prepared to implement all non-structural BMPs described in the approved final project-specific WQMP; and
 - d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.
 - e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.
 - f. Obtain approval and complete installation of the irrigation and landscaping.
131. Prior to occupancy, the following improvements shall be completed:
Morton Road (60' R/W / 36' CC: Local Street, City Standard No. MVS1-107A-0 (Modified)) shall be constructed to achieve a half-width of 18' plus 12' beyond centerline, along the entire project's west frontage. Morton Road shall transition to the existing street to the north, and shall transition to the existing street to south, using existing and proposed curvature data. Improvements on the west side may be required for transition, alignment, and/or drainage purposes, as directed by the City Engineer. Improvements shall consist of, but not be limited to, pavement, base, curb, gutter, sidewalk, driveway approaches, drainage structures, any necessary offsite improvement transition /joins to existing, street lights, pedestrian ramps, and dry and wet utilities.
Prior to improvement plan approval, the developer shall provide to the City Engineer the results of coring tests confirming that said existing pavement section has been constructed per City Standard No. MVS1-107A-0. Any missing or deficient improvements along the project's west frontage shall be constructed prior to issuance of a certificate of occupancy.

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Special Districts Division

132. Street Light Coordination/Advanced Energy Fees. Prior to the issuance of the 1st Building Permit for this project, the Developer shall pay New Street Light Installation Fees for all street lights required to be installed for this development. Payment will be collected by the Land Development Division. Fees are based on the street light administration/coordination and advanced energy fees as set forth in the City Fees, Charges, and Rates as adopted by City Council and effective at the time of payment. Any change in the project which increases the number of street lights to be installed requires payment of the fees at the then current fee. Questions may be directed to the Special Districts Administration at 951.413.3470 or SDAdmin@moval.org.
133. Major Infrastructure SFD Major Infrastructure Financing District. Prior to applying for the 1st Building Permit, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee or use the alternative identified at the time of the special financing district formation) to provide an ongoing funding source for the construction and maintenance of major infrastructure improvements, which may include but is not limited to thoroughfares, bridges, and certain flood control improvements. This condition will be applicable provided said district is under development at the time this project applies for the 1st Building Permit. This condition must be fully satisfied prior to issuance of the 1st Certificate of Occupancy. This condition will be satisfied with the successful annexation/formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings. An alternative to satisfying this condition will be identified at such time as a special financing district has been established. At the time of development, the developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to determine if this condition is applicable.
134. Maintenance Services Funding. Prior to applying for the 1st Building Permit, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the

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annexation fee or use the alternative identified at the time of the special financing district formation) to provide an ongoing funding source for the operation and maintenance of public improvements and/or services associated with impacts of the development. This condition will only be applicable provided said district is under development at the time this project applies for the 1st Building Permit.

This condition must be fully satisfied prior to issuance of the 1st Certificate of Occupancy. This condition will be satisfied with the successful annexation/formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.

An alternative to satisfying this funding source will be identified at such time as a special financing district has been established. At the time of development, the developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to determine if this condition is applicable.

135. Public Safety Funding. Prior to applying for the 1st Building Permit, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee or use the alternative identified at the time of the special financing district formation) to provide an ongoing funding source for Public Safety services, which may include but is not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. This condition will only be applicable provided said district is under development at the time this project applies for the 1st Building Permit.

This condition must be fully satisfied prior to issuance of the 1st Certificate of Occupancy. This condition will be satisfied with the successful annexation/formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is

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not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.

An alternative to satisfying this condition will be identified at such time as a special financing district has been established. At the time of development, the developer must contact Special Districts Administration at 951.413.3470 or at SAdmin@moval.org to determine if this condition is applicable.

136. CFD 2014-01. Prior to City Council action authorizing the recordation of the map, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee, form an association to fund the services or fund an endowment) to provide an ongoing funding source for a) Street Lighting Services for capital improvements, energy charges, and maintenance and b) street and storm drain maintenance.

This condition must be fully satisfied prior to issuance of the 1st Building Permit. This condition will be satisfied with the successful annexation/formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.

Alternatively, the condition can be satisfied by the Developer forming a property owner association that will be responsible for the improvements and any and all operation and maintenance costs for the improvements or by funding an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation, as calculated by Special Districts Admin staff. The Developer must contact Special Districts Administration at 951.413.3470 or at SAdmin@moval.org to satisfy this condition.

137. NPDES Funding. Prior to City Council action authorizing recordation of the final

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map for the development and if the Land Development Division requires this project to provide a funding source for the City's National Pollutant Discharge Elimination System (NPDES) program, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the balloting/annexation fee or fund an endowment) to provide an ongoing funding source for the NPDES program. This condition must be fully satisfied prior to issuance of the 1st Building Permit. This condition will be satisfied with the successful special election process into the NPDES program, or other special financing district, and payment of all costs associated with the special election process. Participation in the NPDES program requires an annual payment of the annual special tax, assessment, rate or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the City Council action to consider the ballot/annexation into or formation of the district, the qualified elector(s) will not protest the ballot/annexation or formation, but will retain the right to object to any eventual tax/assessment/rate/fee that is not equitable should the financial burden of the tax/assessment/rate/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings. (City of Moreno Valley Municipal Code Title 3, Section 3.50.050). Alternatively, the condition can be satisfied by the Developer funding an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation, as calculated by Special Districts Admin staff. The Developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to satisfy this condition.

138. Park Maintenance Funding. Prior to City Council action authorizing the recordation of the map, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee or fund an endowment) to provide an ongoing funding source for the continued maintenance, enhancement, and/or retrofit of parks, open spaces, linear parks, and/or trails systems.

This condition must be fully satisfied prior to issuance of the 1st Building Permit. This condition will be satisfied with the successful annexation/formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special

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election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.

Alternatively, the condition can be satisfied by the Developer funding an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation, as calculated by Special Districts Admin staff. The Developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to satisfy this condition.

139. The ongoing maintenance of any water quality BMP (e.g. Bioswale) constructed in the public right of way shall be the responsibility of a property owner association or the property owner.
140. Maintenance Responsibility. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.
141. Zones A and C. The parcel(s) associated with this project is included in Moreno Valley Community Services District Zone A (Parks & Community Services) and Zone C (Arterial Street Lighting). Zone A is levied on the property tax bill on a per parcel or dwelling unit basis. Zone C is levied on the property tax bill on a per parcel basis. Zone A and Zone C are levied against all assessable parcels, and any subdivision thereof.

Transportation Engineering Division

142. All project driveways shall conform to City of Moreno Valley Standard Plans No. MVSI-111A-0 for residential driveway approaches.
143. Box Springs Road is designated as a Minor Arterial (88'RW/64'CC). Any modifications or improvements undertaken by this project shall be consistent with City Standards or as approved by the City Engineer.
144. Street "A" shall be improved as a modified Local Street (56'RW/36'CC) per City Standard Plan No. MVSI-107A-0. Any improvements undertaken by this project shall be consistent with City Standards or as approved by the City Engineer. A landscaped, raised median shall be installed on Street "A" such that sight distance is not obstructed. Appropriate signage shall be installed to clearly indicate the direction of travel.
145. Street "B" and Street "C" shall be improved as Local Streets (56'RW/36'CC) per City Standard Plan No. MVSI-107A-0. Any improvements undertaken by this project shall be consistent with City Standard.

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146. Conditions of approval may be modified or added if a phasing plan is submitted for this development.
147. Prior to final approval of any landscaping or monument sign plans, the project plans shall demonstrate that sight distance at the project driveways conforms to City Standard Plan No. MVS1-164A, B, C-0.
148. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per California Manual on Uniform Traffic Control Devices (CAMUTCD) and City of Moreno Valley Standard Plans - Section 4 for all streets within the project area. The signing and striping plan shall include a pedestrian crossing to the satisfaction of the City Traffic Engineer for Street "B", between Street "A" and Street "C", as shown on the approved exhibits.
149. Prior to issuance of an encroachment permit for works within the public right-of-way, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer shall be required for plan approval by the City Traffic Engineer.
150. Prior to issuance of the first building permit, the Developer shall coordinate with the City of Riverside Public Works Department and purchase the necessary traffic signal appurtenance equipment for the improvement, as identified in the Gateway Heights Traffic Study, dated February 12, 2021, at the intersection of Sycamore Canyon Road and Fair Isle Drive.
151. Prior to acceptance of streets into the City-maintained road system, all approved signing and striping shall be installed per current City Standards and the approved plans.

PARKS & COMMUNITY SERVICES DEPARTMENT

152. This project is subject to current Development Impact Fees.

UNITED ENGINEERING GROUP

Gateway Heights Planned Unit Development Moreno Valley, California

December 2022

Prepared for:

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Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)

PLANNED UNIT DEVELOPMENT

FOR

Gateway Heights

December 2022

Submitted to



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Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)

UEG Project No. 30182

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- A. Vicinity Map
- B. Development Area
- C. USGS Topographic Map
- D. FEMA FIRM Map
- E. General Plan Map
- F. Zoning Map
- G. Area Circulation Map
- H. Gateway Specific Plan
- I. Surrounding Jurisdictions
- J. Open Space/Park Plan
- K. Cluster Detail
- L. Street Sections
- M. Conceptual Wall & Fence Plan

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- A-1.1 – Plan 1 Floor Plan A
- A-1.2 – Plan 1 Floor Plan B
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- A-1.4 – Plan 1 Elevation B
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- A-2.4 – Plan 2 Elevation B
- A-3.1 – Plan 3 Floor Plan A
- A-3.2 – Plan 3 Floor Plan B
- A-3.3 – Plan 3 Elevation A
- A-3.4 – Plan 3 Elevation B

SITE PLAN

- Sheet 1 – Preliminary Site Plan
- Sheet 2 – Preliminary Grading & Drainage Plan

APPENDIX 1

- Preliminary Fire Protection Technical Report/Plan

1.0 PURPOSE

The purpose of this Planned Unit Development (PUD) is to describe the overall design concept for the Gateway Heights project and outline the design details that will be incorporated into the final design decisions. The Gateway Heights project presents innovative housing options within the City of Moreno Valley, while delivering a vast amount of recreational open space to the surrounding communities. This manual includes both design standards and guidelines. The guidelines in this document will lay out both functional and aesthetic design concepts as an overall strategy to be followed at the time of development. The primary objective is to establish a consistent theme throughout the project. This document will establish design standards, overall theme, wall and fence concepts, and pedestrian connectivity to be used in the future build out of this project. This Planned Unit Development (PUD) is being processed in conformance with City of Moreno Valley Municipal Code, Chapter 9.03.060.

2.0 PROJECT BACKGROUND & DESCRIPTION

Gateway Heights is located north of Jennings Court and east of Morton Road in the City of Moreno Valley (Refer to **Exhibit A – Vicinity Map**). The property contains 32.70 acres in the foothill of the Box Springs Mountain Reserve Park. The project proposes to develop approx. 16.59 acres of 32.56 acres into 108 detached condominium units with the dwelling units in an 8-unit “cluster” concept. (See **Exhibit B – Development Area**) The remaining 15.97 acres will be rezoned to Open Space (OS). It is anticipated that the open space area will be incorporated into the local trail system of hiking, trail running, and mountain biking trails, and the open space area will be available for recreational use by residents of Gateway Heights and the City of Moreno Valley. The project will also contain 3.1 acres of open space, trails and park area within the community providing residents with space to enjoy. The project proposal is consistent with the City of Moreno Valley’s Residential 10 (R10) District which allows for a maximum density of 10 dwelling units per net acre. In order to ensure the quality and cohesiveness of PUD projects, the City of Moreno Valley requires additional design details during planning stages. The requirement for these design standards and details helps ensure that City design objectives are met. By implementing the following design points, this project meets these City design objectives for PUDs:

- Provides innovation and diversity in housing choices that would not otherwise be possible according to the strict application of the site development regulations in this title because the detached condominium concept provides its residents with the benefits of single-family homeownership while also conferring on them the benefits of shared community living.
- Provides access to adjacent natural resources, open space, onsite recreational facilities through the dedication of nearly one-half of the property to open space that will interconnect with a regional trail system.
- Installation of storm water pollution control systems pursuant to the municipal storm water permit issued by the Regional Water Quality Control Board (RWQCB).

3.0 EXISTING CONDITIONS

The property is currently unimproved land bordered to the south by an existing single family residential development. The site lies just to the east of Interstate 215 and to the north of the US 60/I-215 interchange. The site had previously been entitled for a single-family residential development (Tract 33626) in 2007 but those entitlements expired.

The topography of this site has two naturally defined areas. The lower lying area, which generally contains slopes under 15% and the mountainous area which consists of slopes greater than 25%. The site generally slopes from northeast to southwest (See **Exhibit C – USGS Topographic Map**). The property is located within Flood Zone 'X' (areas determined to be outside of the 100-year and 500-year floodplain) Refer to **Exhibit D – FIRM Map** (Map No. 06065C0733G, dated August 28, 2008).

Per the General Plan, the property currently has land use designations of Residential Max 2DU/AC (R2) and Hillside Residential (HR). (Refer to **Exhibit E – General Plan Map** and **Exhibit F – Zoning Map**)

Transportation corridors and area circulation will be developed in conformance with the City of Moreno Valley's General Plan. Refer to **Exhibit G – Area Circulation Map** for a representation of the major roadways in the areas of the subject site.

4.0 RELATIONSHIP TO SURROUNDING PROPERTIES

The surrounding properties in the area include vacant land, existing single-family homes, and hillside. A majority of the vacant land adjacent to this project are contained within the Gateway Center Specific Plan, in the unincorporated area of Riverside County, to the west of the project. This Specific Plan contains densities from 5du/acre to 16du/acre as well as a school site bordering Morton Road to the west. (See **Exhibit H – Gateway Specific Plan**) To the north and east are areas zoned as Hillside Residential in the City of Moreno Valley and Conservation in the County of Riverside, to the east and south of the project there are eight existing single-family homes. (See **Exhibit I – Surrounding Jurisdictions**)

The surrounding General Plan land use designations are as follows:

- North: Hillside Residential (HR) & Conservation (County of Riverside)
- South: Residential Max. 5du/acre (R5)
- East: Hillside Residential (HR)
- West: Gateway Center Specific Plan (County of Riverside)

The surrounding existing land uses are as follows:

- North: Vacant
- South: Single Family Residences
- East: Vacant
- West: Vacant

5.0 PRELIMINARY DEVELOPMENT PLAN

The Gateway Heights development is intended as a planned residential community offering innovative cluster housing options in the lower lying portion of the site and open space on the remainder of the site. The development will include a community park, open space and a common community design identity. This development plan coupled with the unique location of this property will provide multiple housing alternatives for both entry-level buyers, young families, and retirees, as well as student and faculty for the University of California-Riverside.

As mentioned above, the R10 designated area of Gateway Heights will be clustered on 16.59 acres of the property and will contain 108 units located near the center of the development area. This gives the property a density of 3.37 units per acre with a clustered density of 6.51 units per acre. This density is well within allowances of the proposed General Plan designation of R10 (10 units per net acre). The remaining 15.97 acres will be changed to Open Space (OS) and designated for conservation. In addition to the open space, the project will also provide a 0.89 acre community park located in the center of the development. (Refer to **Exhibit J – Open Space/Park Plan**)

The residential uses within the Gateway Heights development will consist of cluster units in varying sizes ranging from 4-unit to 10-unit clusters. This development will be subject to the requirements in Chapter 9.03.040 (Residential Site Development Standards) and 9.03.060 (Planned Unit Developments) of the City of Moreno Valley's municipal code.

5.1 Cluster Design

These units will contain 4-unit to 10-unit auto court product on pad sizes ranging from 7,674SF to 16,254SF. (Refer to **Exhibit K – Cluster Detail**) These cluster units are arranged with garages facing a common driveway as to enhance the aesthetic views of the project from the street and perimeter. The purpose of this design concept is to ensure architectural continuity and compatibility throughout the project utilizing the following design criteria:

- Provide front door access to open space/courtyard for inside units and street access for outside units.
- Provide garage access at common private street
- Use enhanced elevations for homes facing the public street.
- Provide patios or balconies to enhance architectural styles and increase private open space.
- Consider additional building articulation through recessed garage doors, recessing or cantilevering second stories and varying roof pitches.

(Refer to **A-1.3 thru A-3.4 – Conceptual Floor Plans/Elevations**)

5.2 Alternative Design Standards

This planned unit development for the Gateway Heights project contains various design alternatives that differ from the standard R10 design standards in order to promote the objectives stated above in Section 2. As allowed in the City of Moreno Valley’s Municipal Code Section 9.03.060.G, planned unit developments may deviate from the site development standards set forth in the applicable zoning district regarding lot area, lot dimensions, lot coverage, setbacks and building height.

5.2.1 Lot Coverage

The Gateway Heights project contains 13 development pad areas varying in size from 7,674 to 16,254 square feet. The cluster development will be exclusively contained within these development pads and the pads will have a maximum building coverage of 65%. The remaining pad area shall contain driveways, sidewalks and landscaping.

5.2.2 Building Setbacks

Front/Street Side setback = 5’ to ROW

Minimum building separation = 6’

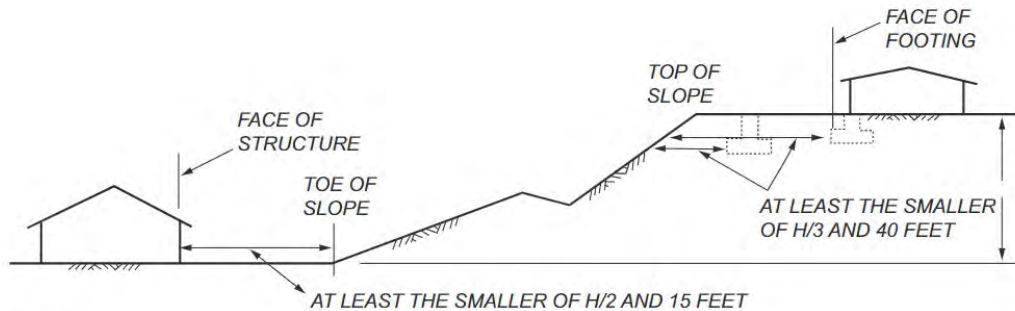
Side setback to toe/top of slope = 5’ Min*

Rear setback to toe/top of slope = 5’ Min*

*-For buildings located at the top or toe of slope, the minimum building setback shall be determined by the California Building Code Section 1808.7 which states that buildings at the toe of slope shall be at least the smaller of H/2 or 15’ from the toe of slope. Buildings at the top of slope shall be at least the smaller of H/3 or 40’ from the top of slope.

Example: 20’ Slope Height = 10’ setback at toe of slope (20/2)

20’ Slope Height = 7’ setback at top of slope (20/3)



For SI: 1 foot = 304.8 mm.

FIGURE 1808.7.1 FOUNDATION CLEARANCES FROM SLOPES

Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)

5.2.3 Building Height

Building heights for the two story units will not exceed 30' in height.

5.2.4 Street Sections

The streets within the Gateway Heights PUD will be private streets maintained by the project's Homeowner Association. These streets will be constructed based on the City of Moreno Valley's Local Street section MVSI-107A-0. Street A and Street C will be constructed using a modified section which eliminates the sidewalk and landscape area along the project perimeter. The purpose for these modified sections is to preserve the natural landscape along the perimeter of the project. With the elimination of these sidewalks, a pedestrian crossing has been located at approximately mid-block of Street B to provide ADA access to the units on the north side of Street B. (Refer to **Exhibit L – Street Section Details**)

TABLE 1

GATEWAY HEIGHTS DEVELOPMENT STANDARDS	
Max Building Height	30'
Min Front/Street Setback	5'
Min Bldg seperation	6'
Min. Side setbacks	5'*
Min. Rear setbacks	5'*
Max Development Pad Coverage	65%

5.3 Fire Protection Plan

The Gateway Heights project has developed a Fire Protection Plan in conjunction with the development to increase safety measures and mitigate any fire hazards for the project. The mitigations include providing two 36'+ wide roadways at the entrance to minimize any potential traffic congestion during an emergency setting. One roadway would be used for ingress and the other for egress. The site also includes an internal looped road system allowing traffic circulation in either direction. Direct access shall be provided to all structures and no dead-end fire apparatus access roads are contained onsite. The project has also developed a Preliminary Fuel Modification and Vegetation Management plan for the site which includes requirements for landscape materials to reduce non-fire-resistant vegetation. (Refer to **Appendix 1**) A Final Fuel Modification Plan will be required as part of the Final Design submittals for approval prior to obtaining a Grading Permit.

Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)

5.4 Community Park & Landscape Buffers

This project will contain a community park space area, approximately 0.89 acres in size and with various elements for recreation. This community park will be located near the center to the subdivision allowing easy access to all residents. This park space may contain amenities such as BBQ and picnic areas, ramadas, tot lot, dog park and turf areas for additional gathering and activities. The park will be owned and maintained by the project's Homeowners Association. In addition to the community park, this project will also incorporate landscaped buffer areas throughout the project and along the project's perimeter. These landscape areas will also be maintained by the Homeowners Association and subject to the requirements of the Fire Protection Plan.

5.4.1 General Guidelines

- All landscape shall conform to Ordinance No. 859.2 and County of Riverside Guide to California Friendly Landscaping.
- All planting areas shall be irrigated with an automatic irrigation system and an ET based controller, per Ordinance 859.2.
- All planting areas shall receive three inches (3") of shredded bark mulch and one and a half inches (1-1/2") on ground cover from flats.
- All trees within six feet (6') of any hardscape shall receive thirty-six inch (36") deep, by twenty inch (20") long linear root barrier.
- All slopes three feet (3') in vertical height or greater shall be planted with shrubs and trees and irrigated per the Riverside County requirements for slope erosion control landscaping. Slopes to meet building and safety requirements.
- Landscaping shall consist of a combination of trees, shrubs and groundcover as listed in the California Friendly Plant List provided by the County.

5.5 Entry Monuments, Walls & Project Theme

The primary entry for the community will be located at the intersection of "Street A" and Morton Road. The elevated topography of the Gateway Heights project will make it a predominant development near the I-215 freeway. As such, it is important to minimize the walls and fences that could impact the views from the street or surrounding areas. The Gateway Heights project will contain no walls on the interior of the project. The perimeter of the project will consist of decorative view walls and/ or tubular steel fencing. Perimeter wall and fence materials, designs, and colors will carry on the project's theme established by the project's monument signage and landscaping. Wall and fence heights will be limited to a maximum height of six (6) feet, except where necessary for noise attenuation or additional retaining wall. Decorative pillars and pedestals may extend up to an additional fourteen (14) inches above the maximum wall or fence heights. (Refer to **Exhibit M – Conceptual Wall & Fence Plan**) Materials, colors, and construction methods for theme, view and accent walls are

subject to some variation, so long as the proposed character and theme of the walls is preserved and per the approval of the Planning Department.

While in some areas of the development, units may have retaining walls the majority of the development will not be separated by neighborhood walls at the rear or side yards.

5.5.1 General Guidelines

- All walls and fences should maintain a six foot (6') maximum height limit, except where larger walls are necessary for noise attenuation or retaining purposes.
- If walls or fences end in a pilaster, the design of the pilaster should reflect the shape of the supports used in the entry monuments and use similar materials.
- When changes in pad elevation occur, the wall or fence should be stepped in equal vertical intervals.
- Where gates are required, they shall be constructed of wrought iron, vinyl or tubular steel. Chain link fencing is not permitted. All construction must be of good quality and sufficient durability. (Applicants shall provide specifications which shall be approved by the Planning Department)
- All wall and fence plans and materials must conform to City of Moreno Valley guidelines.

5.6 Perimeter Yard Landscaping

Perimeter yard landscaping is required around all cluster pads and unless approved by the Planning Department, will be provided by the developer/home builder. Perimeter yard landscaping provided by the developer/builder or their representative must be installed within one month of closing of the first unit. A variety of perimeter yard landscape packages with automatic irrigation systems shall be provided; landscaping designs with berming, river run features, courtyards, lighting, or other creative features shall be offered for standard landscape design.

5.7 Private Open Space

Private Open Space may include land within each residential unit that is available for private use. This private open space is typically considered yard, patio or balcony area that is available for private recreation. It is recognized that while the community park provides an easily accessible active recreational opportunity for all residents of the development, each residence must have adequate private outdoor space that can be an effective extension of the indoor living space and be used for passive outdoor activities such as gardening, reading, eating and barbequing. Per Moreno Valley Municipal Code Section 9.03.040.G.8, each unit shall have at least one hundred and fifty (150) square feet of private open space.

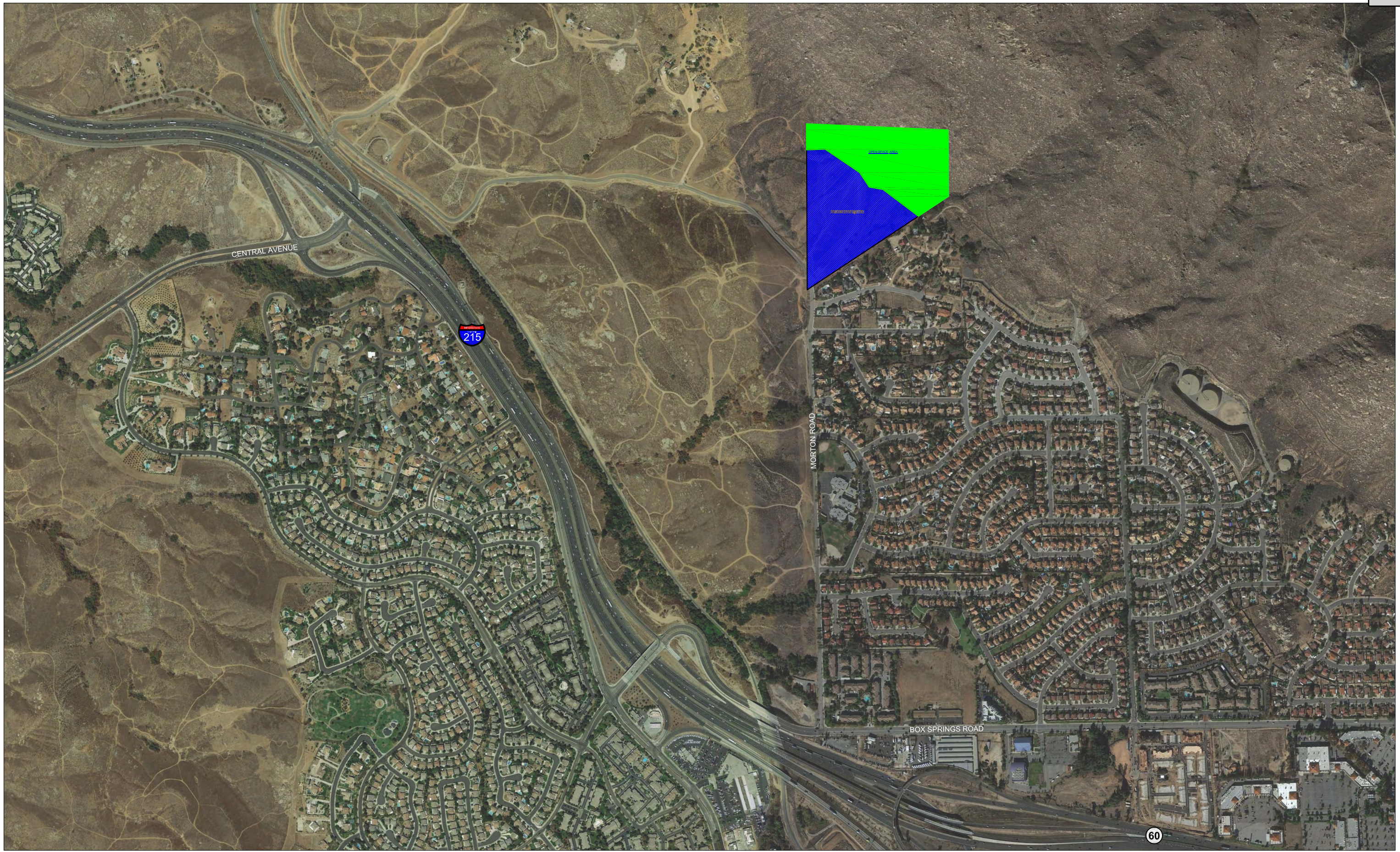
This open space may be achieved through the use of patio or balcony spaces. First floor patio space shall have a minimum dimension of 8' and upstairs balconies must have a minimum dimension of 5'. Patio designs may include alternatives to traditional fencing, such as garden walls, small retaining walls or landscaping which delineates the space between units.



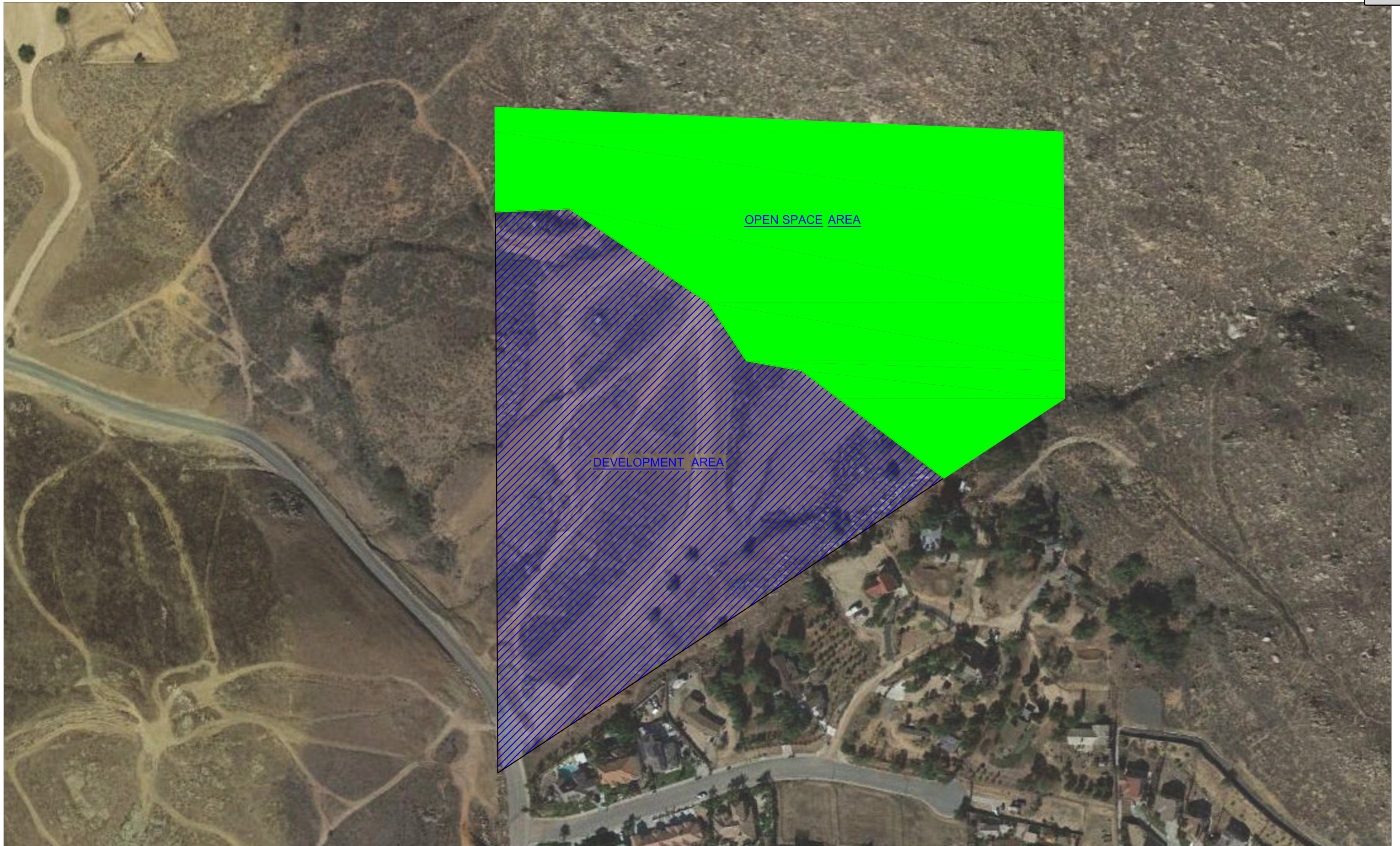
Figure 1 - Galvanized steel rock garden wall

EXHIBITS

Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)



Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)



DEVELOPMENT AREA

OPEN SPACE AREA

DEVELOPMENT AREA

GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

NOT TO SCALE 



EXHIBIT D

Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)



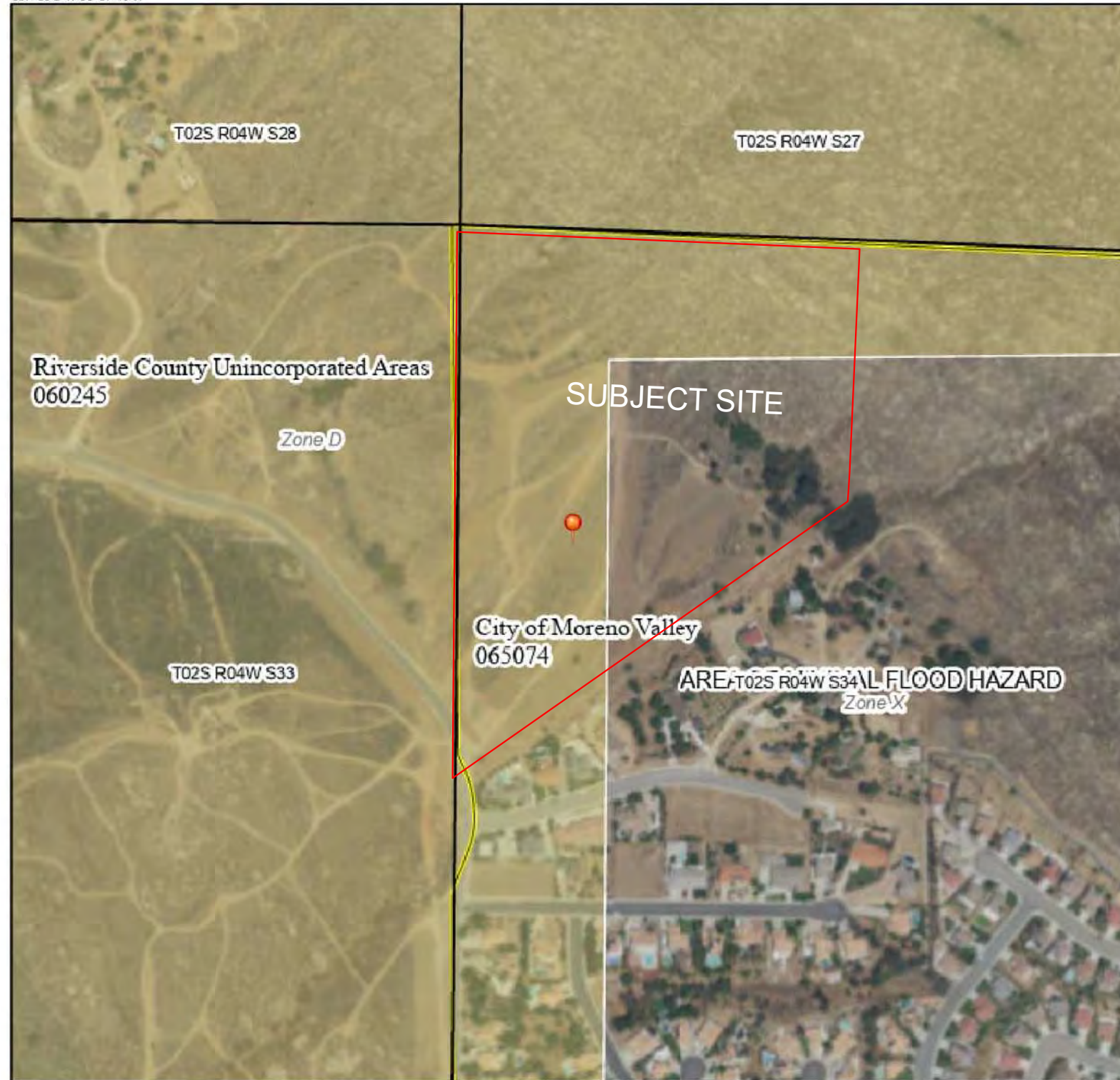
Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)



National Flood Hazard Layer FIRMette



117°18'2"W 33°57'46"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000
 Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020
 117°17'25"W 33°57'16"N

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS**
 - Without Base Flood Elevation (BFE) Zone A, V, A99
 - With BFE or Depth Zone AE, AO, AH, VE, AR
 - Regulatory Floodway
 - OTHER AREAS OF FLOOD HAZARD**
 - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
 - Future Conditions 1% Annual Chance Flood Hazard Zone X
 - Area with Reduced Flood Risk due to Levee. See Notes. Zone X
 - Area with Flood Risk due to Levee Zone D
 - OTHER AREAS**
 - NO SCREEN Area of Minimal Flood Hazard Zone X
 - Effective LOMRs
 - Area of Undetermined Flood Hazard Zone D
 - GENERAL STRUCTURES**
 - Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Floodwall
 - OTHER FEATURES**
 - 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
 - 17.5 Coastal Transect
 - Base Flood Elevation Line (BFE)
 - Limit of Study
 - Jurisdiction Boundary
 - Coastal Transect Baseline
 - Profile Baseline
 - Hydrographic Feature
 - MAP PANELS**
 - Digital Data Available
 - No Digital Data Available
 - Unmapped
- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/22/2021 at 11:51 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

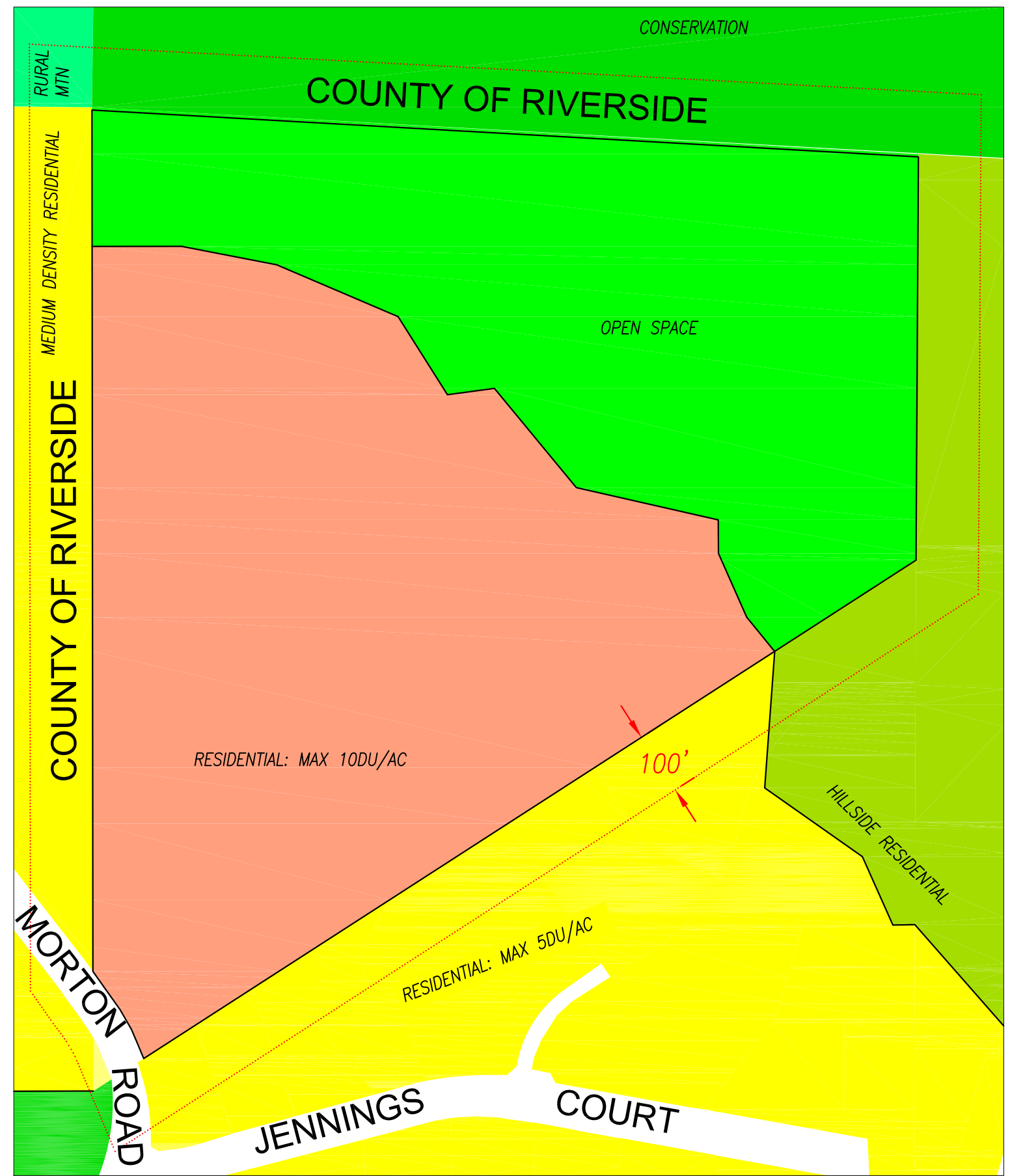
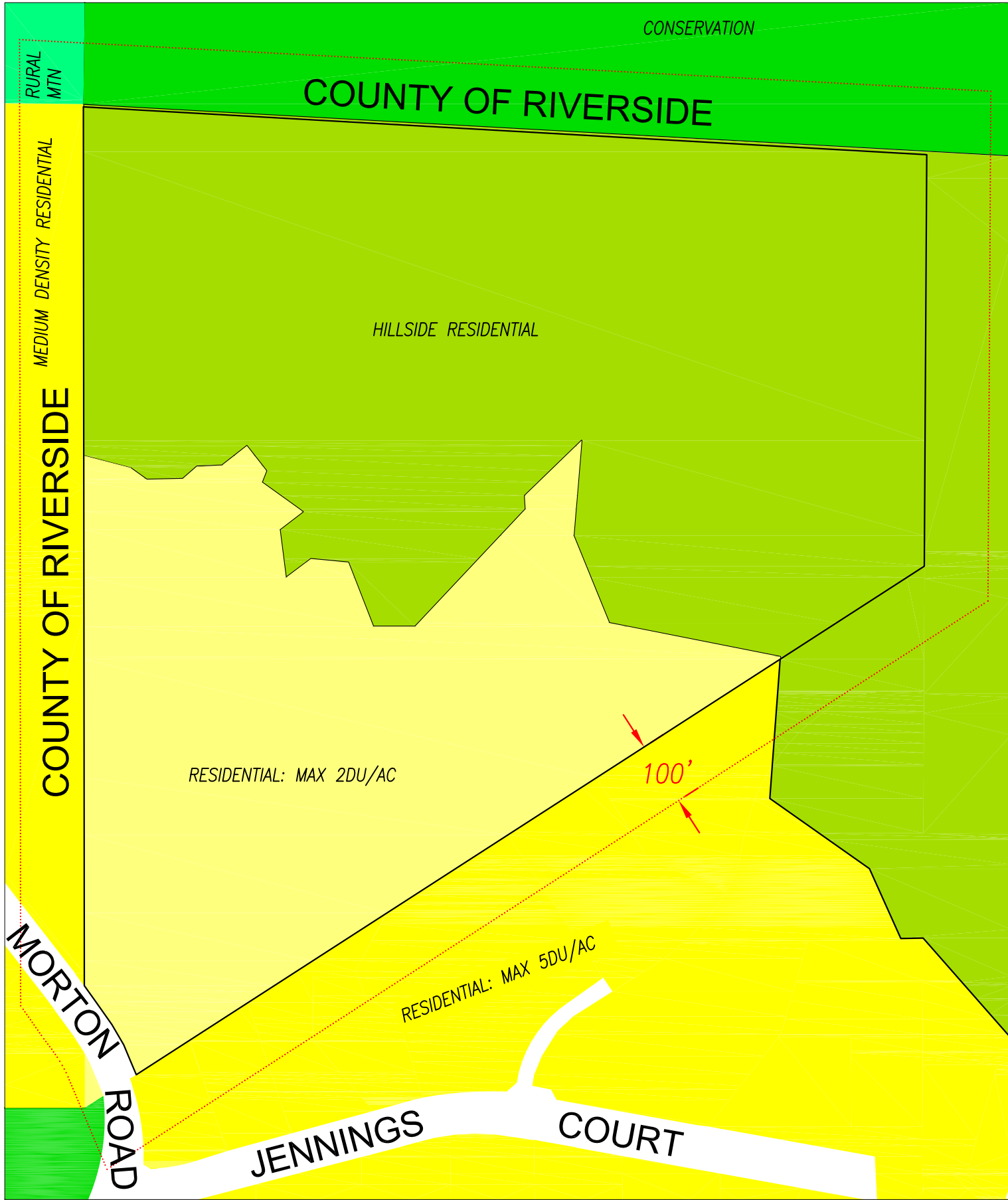
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)



EXISTING GENERAL PLAN

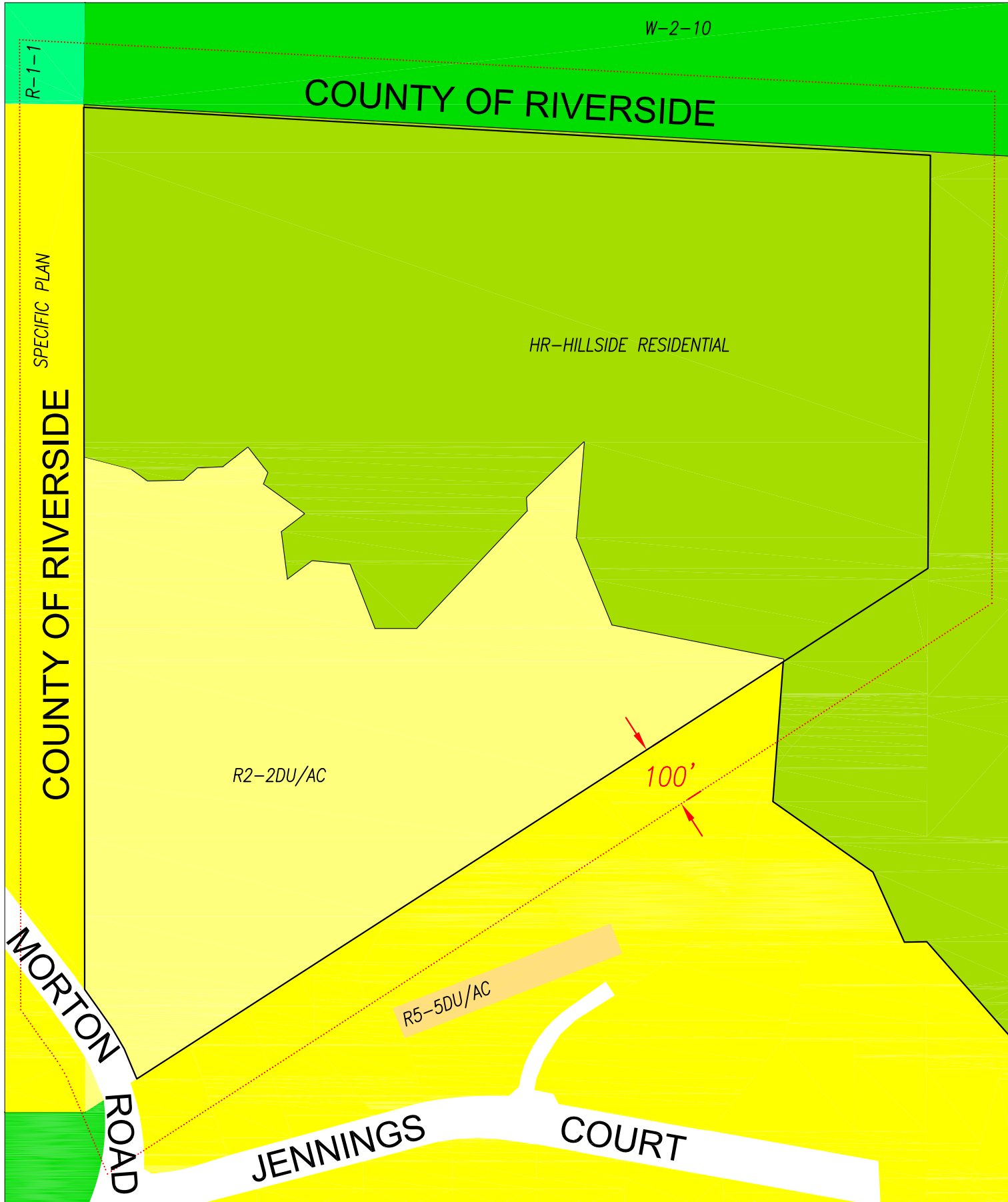
PROPOSED GENERAL PLAN



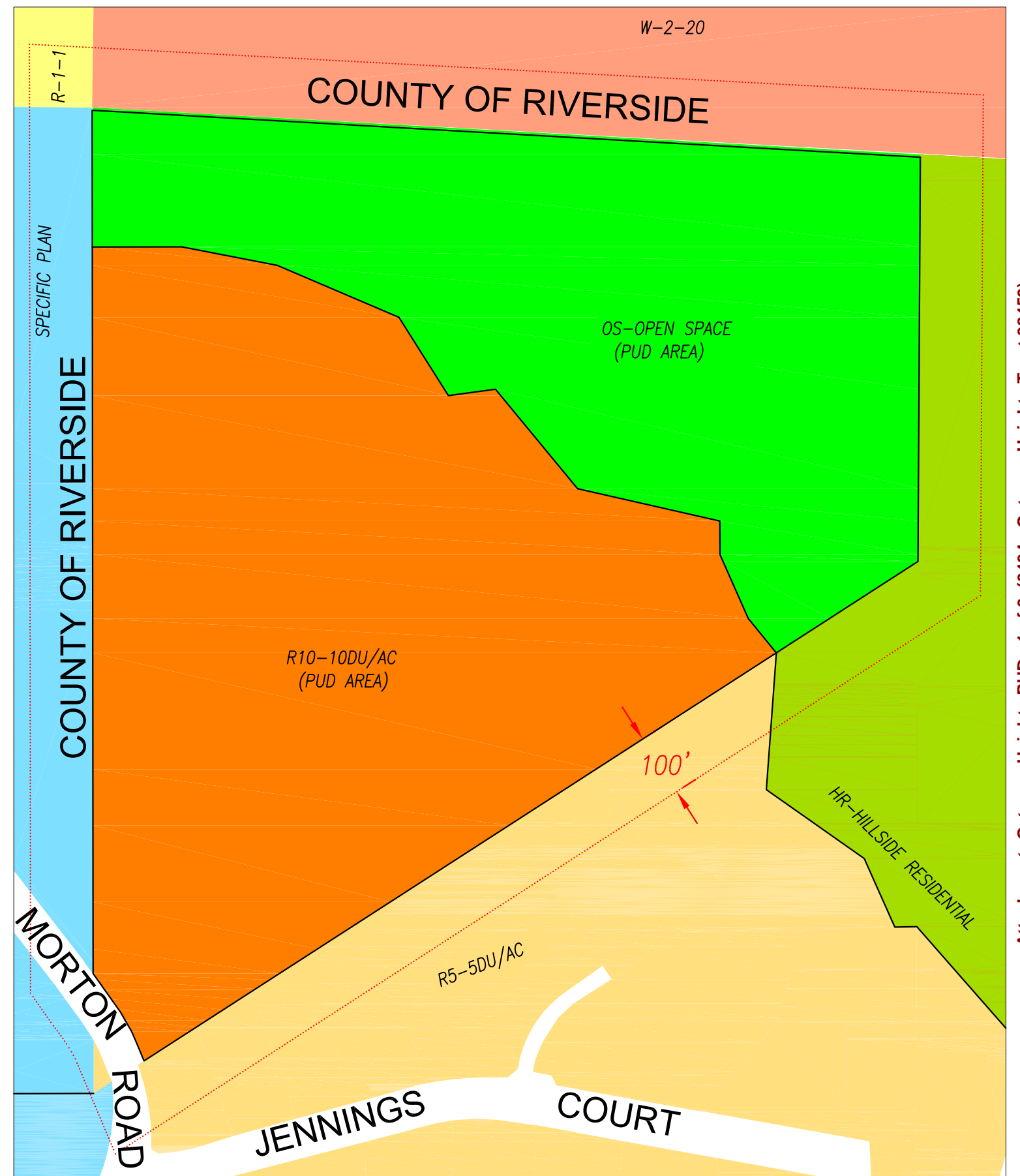
Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)



EXISTING ZONING

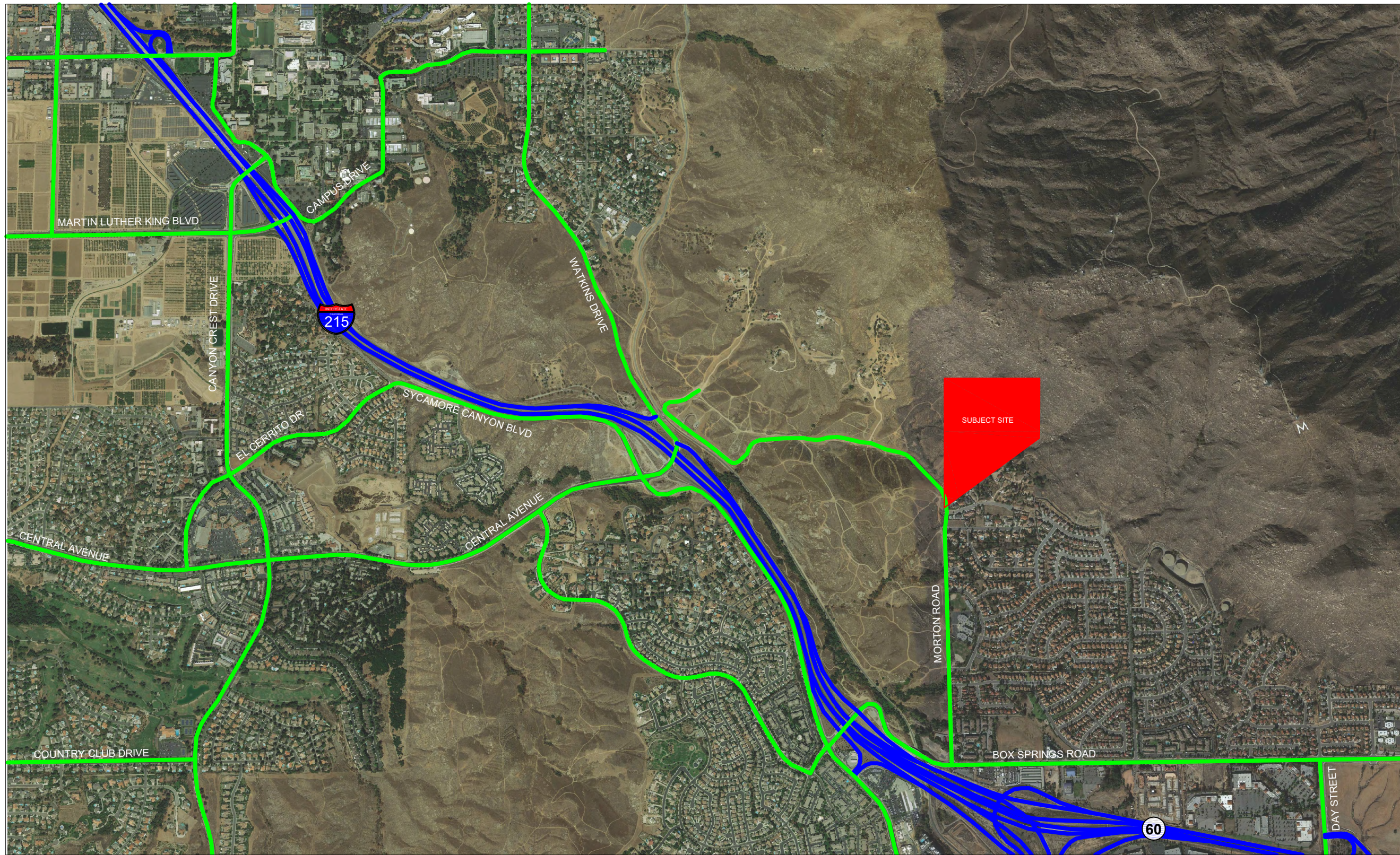


PROPOSED ZONING



Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)





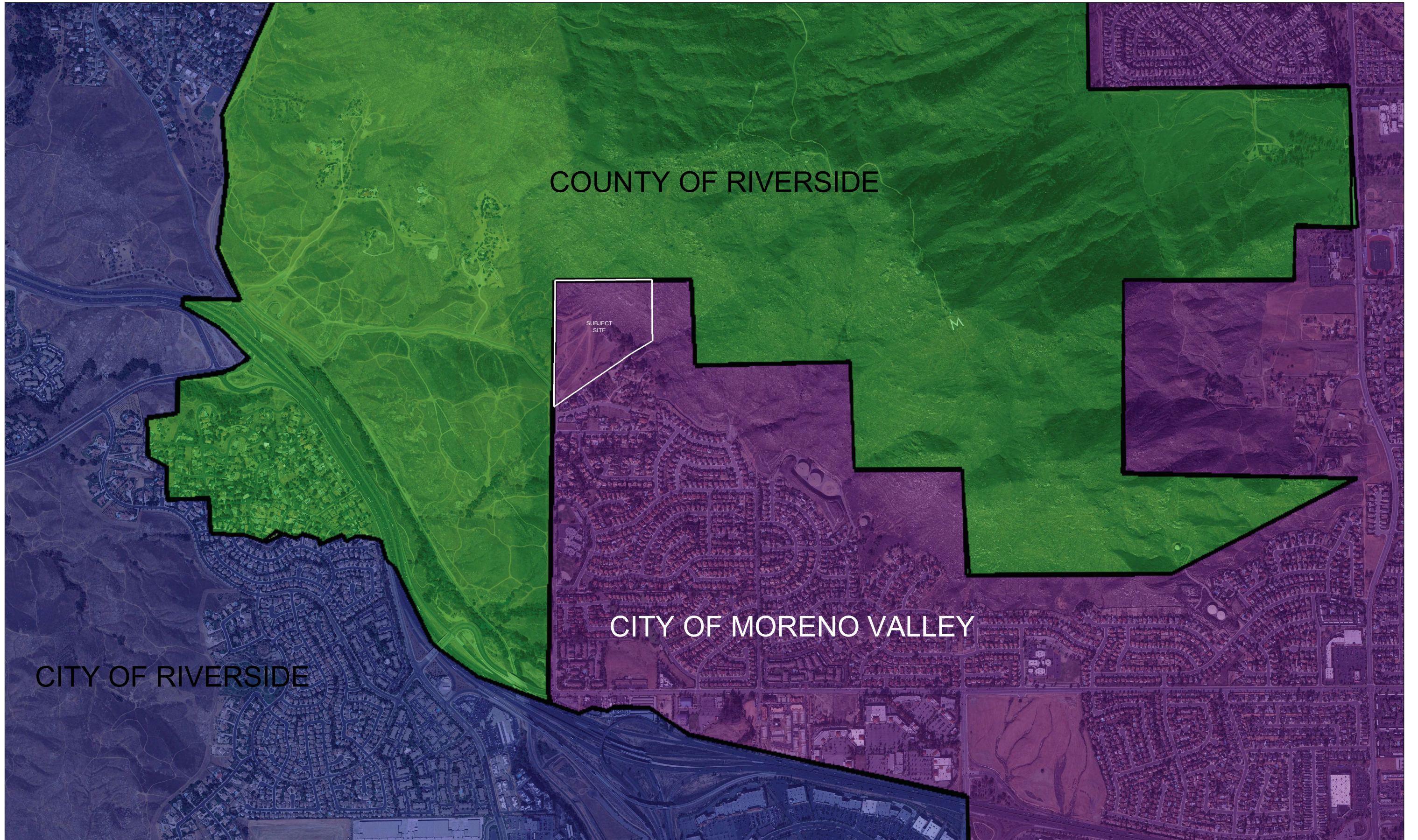
Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)





Attachment: Gateway Heights PUD - 1 of 3 (6434 : Gateway Heights Tract 38459)





COUNTY OF RIVERSIDE

SUBJECT SITE

CITY OF MORENO VALLEY

CITY OF RIVERSIDE

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)





OPEN SPACE/PARK PLAN

GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

NOT TO SCALE

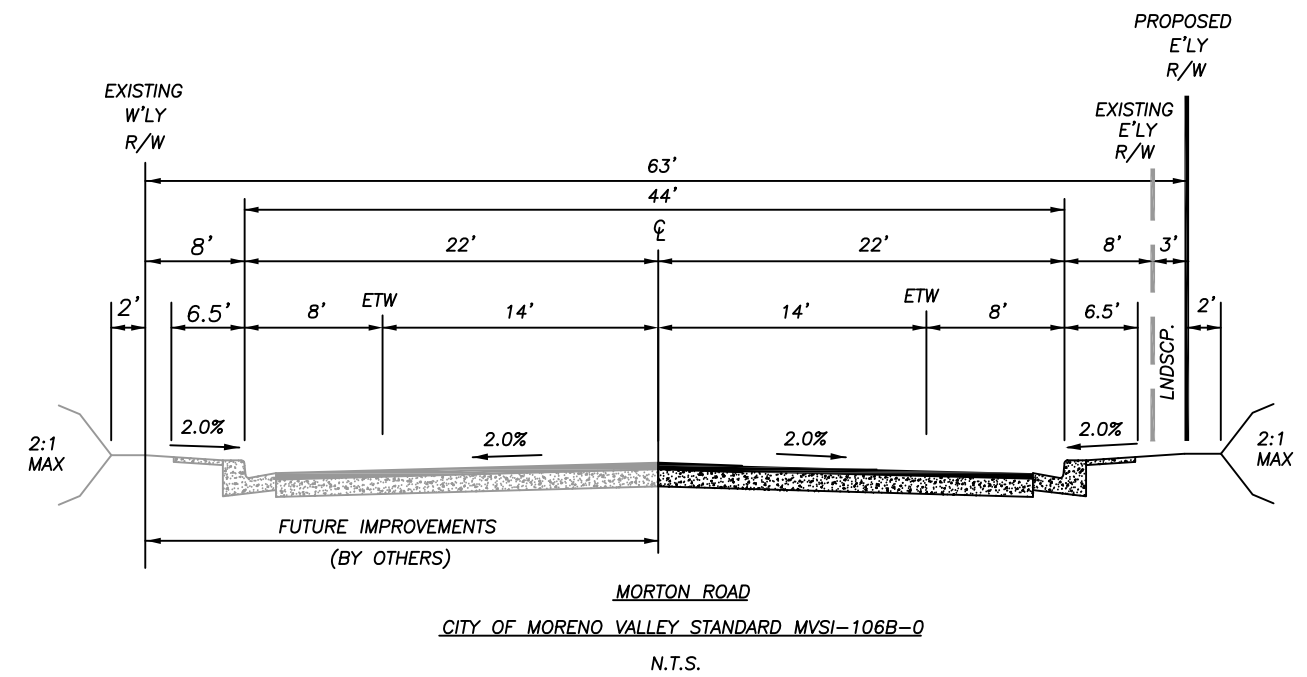
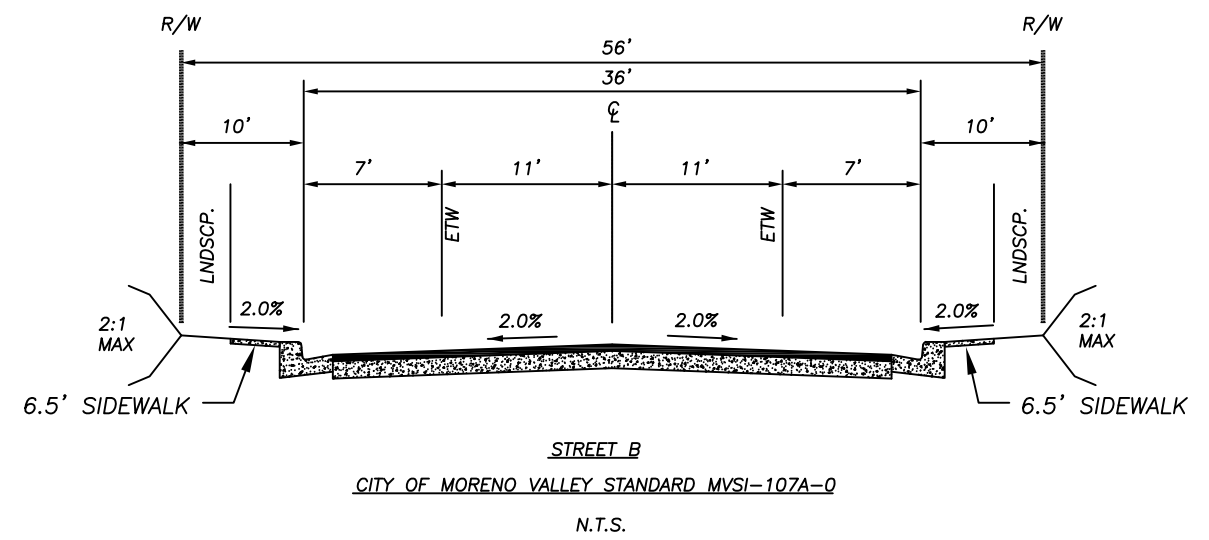
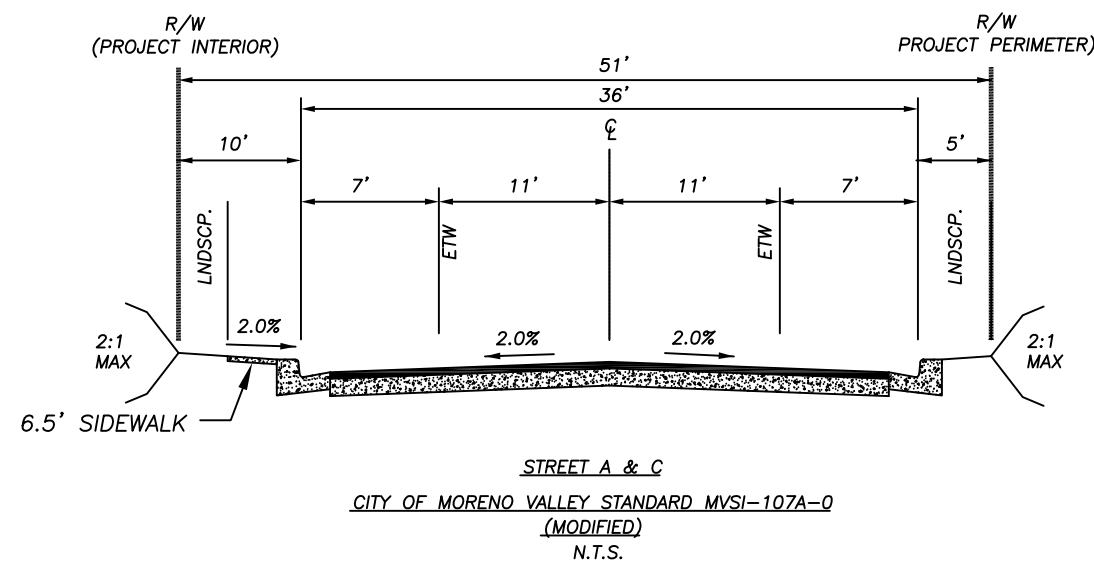
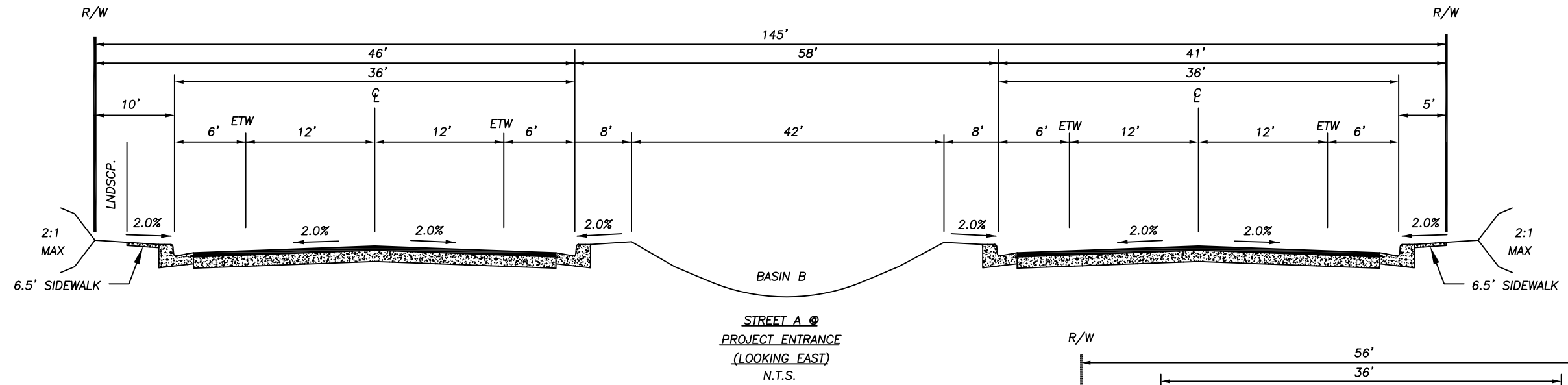


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engineering
group

Packet Pg. 2154

EXHIBIT J

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)



Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

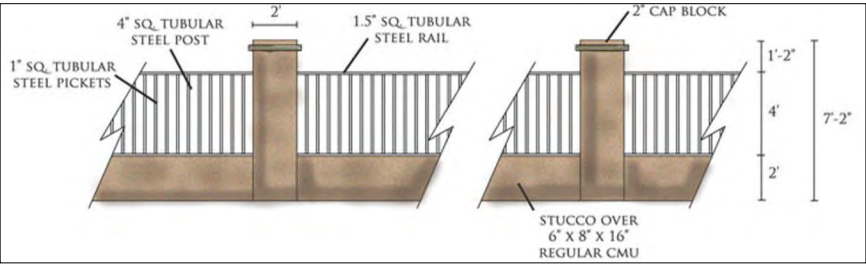




CONCEPTUAL WALL / FENCE PLAN

GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA



VIEW FENCE DETAIL



ENTRY FEATURE DETAIL

NOT TO SCALE



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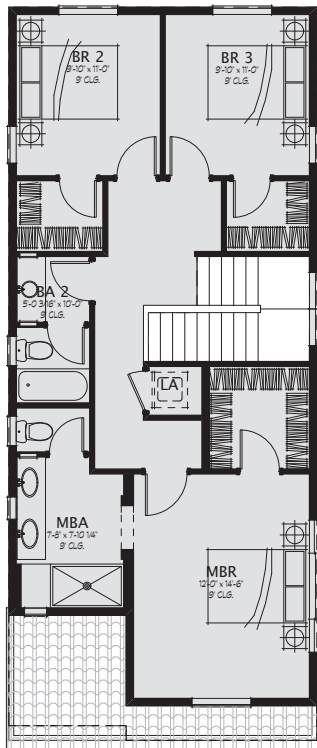
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EXHIBIT M

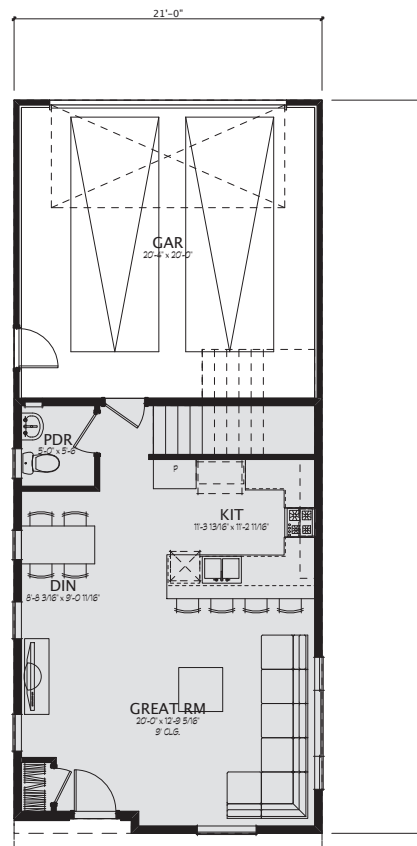
Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

FLOOR PLANS/ELEVATIONS

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)



2 PLAN 2A SECOND FLOOR 885 sq ft



2 PLAN 2A FIRST FLOOR 615 sq ft
TOTAL 1500 sq ft
3 BEDROOM, 2.5 BATHS

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REVISION

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

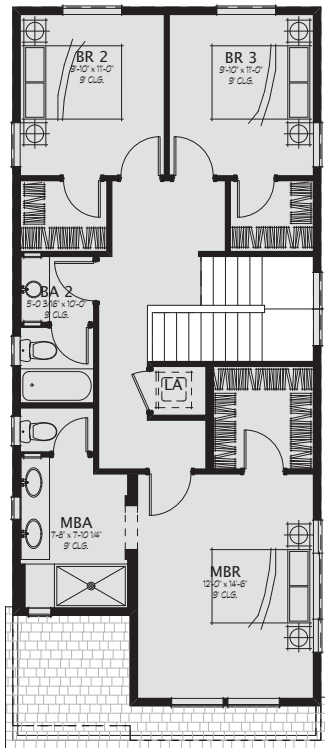
Gateway Heights
Moreno Valley, USA

PROJECT INFO	
NUMBER:	2019
DRAWN BY:	PLK
CHECKED BY:	SJW
DATE:	3/22/22

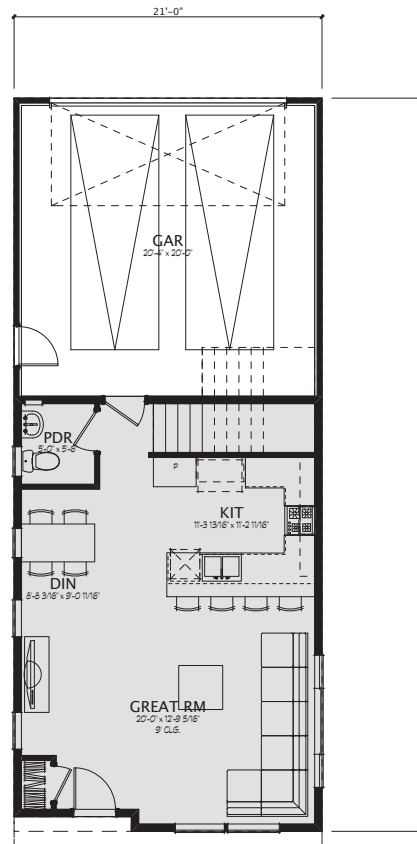
SHEET TITLE

PLAN 2
FOR PLAN 2A

SHEET NUMBER
A-2.1



2 PLAN 2B SECOND FLOOR 885 sq ft



1 PLAN 2B FIRST FLOOR 615 sq ft
TOTAL 1500 sq ft
3 BEDROOM, 2.5 BATHS

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

Gateway Heights
Moreno Valley, USA

PROJECT INFO

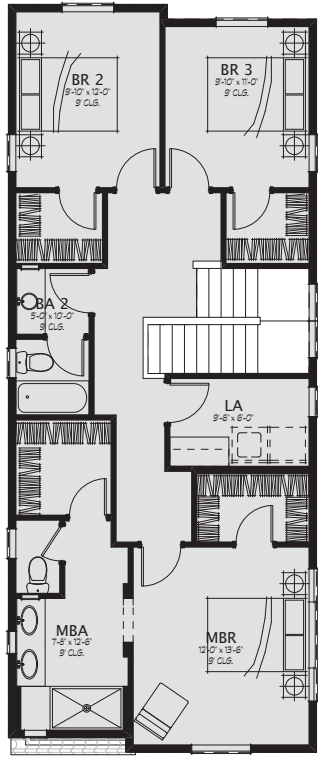
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DRAWN BY	PLK
CHECKED BY	SJW
DATE	3/22/22

SHEET TITLE

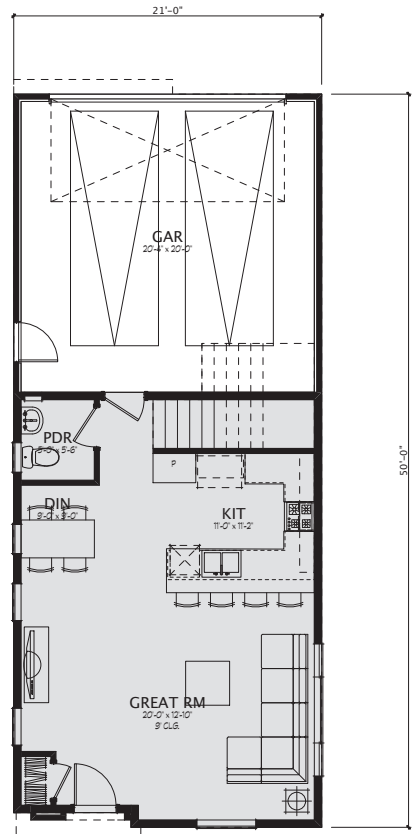
PLAN 2
FOR PLAN 2B

SHEET NUMBER

A-2.2



3 PLAN 3A SECOND FLOOR 987 sq ft



3 PLAN 3A FIRST FLOOR 615 sq ft
TOTAL 1602 sq ft
3 BEDROOM, 2.5 BATHS

PI
Inc.
KREITER PARTNERS
INTERNATIONAL, INC.
Architecture & Planning
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Folsom, California 95614-6802
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REVISION

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

Pasadena, CA 91105
Gateway Heights
Moreno Valley, USA

PROJECT INFO	
NUMBER:	2019
DRAWER:	PLK
DATE:	5/22/22

PLAN 3
GROSS PLAN A

SHEET NUMBER
A-3.01

LEGEND:

- 1 ROOF
- 2 STUCCO BODY
- 3 STUCCO FOAM BASE
- 4 STONE VENEER
- 5 STUCCO TRIM CAP
- 6 SHUTTERS
- 7 FASCIA
- 8 STUCCO DOOR E
- 9 WINDOW TRIM
- 10 STUCCO CORNICE
- 11 BOARD & BATTON TRIM
- 12 DECORATIVE BRACKET
- 13 STUCCO TRIM
- 14 RAFTER TAILS
- 15 DECORATIVE VENT
- 16 STUCCO FOAM SILL
- 17 GARAGE DOOR
- 18 GARAGE SIDE DOOR
- 19 CORBEL



3 PLAN 3B RIGHT ELEVATION



3 PLAN 3B REAR ELEVATION



3 ROOF PLAN 3B



3 PLAN 3B LEFT ELEVATION



3 PLAN 3B FRONT ELEVATION



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REVISION

NO.	REVISION

Pasadena, CA 91105
Gateway Heights
Moreno Valley, USA

PROJECT NO'S

OWNER: 2018

MANAGER: MJK

SCALE: 5/8"

DATE: 3/22/22

SHEET TITLE

**PLAN 3
EXTERIOR
ELEVATIONS "B"
ERN FARMHOUSE**

SHEET NUMBER

A-3.04

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

SITE PLAN

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.
SITE PLAN (PEN21-0066)
 BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN
 UNITED ENGINEERING GROUP CA., INC DECEMBER 2022

LEGAL DESCRIPTION:

THAT PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY; THENCE RUNNING SOUTH ALONG THE WEST LINE OF SAID SECTION 34, 23.50 CHAINS TO THE CORNER MONUMENT MARKING THE NORTHWEST CORNER OF THE LAND CONVEYED TO CECIL R. G. WEBBE TO CHARLES M. DEXTER BY DEED RECORDED IN BOOK 141, PAGE 398, OF DEEDS, SAN BERNARDINO COUNTY RECORDS;
 THENCE NORTH 56 DEGREES 31' EAST ALONG THE LINE OF LAND SO CONVEYED TO CHARLES M. DEXTER, 23.91 CHAINS TO THE NORTHEAST CORNER OF SAID LAND SO CONVEYED TO CHARLES M. DEXTER;
 THENCE NORTH ALONG THE CENTER LINE OF THE NORTHWEST QUARTER OF SAID SECTION 34, 10.40 CHAINS TO THE NORTH LINE OF SAID SECTION 34; THENCE WEST ALONG THE NORTH LINE OF SAID SECTION, 20 CHAINS TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY INTEREST OF THE COUNTY OF RIVERSIDE IN AND TO THAT PORTION LYING WITHIN MORTON ROAD.

ALSO EXCEPTING THEREFROM THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING SOUTHWESTERLY OF SAID MORTON ROAD.

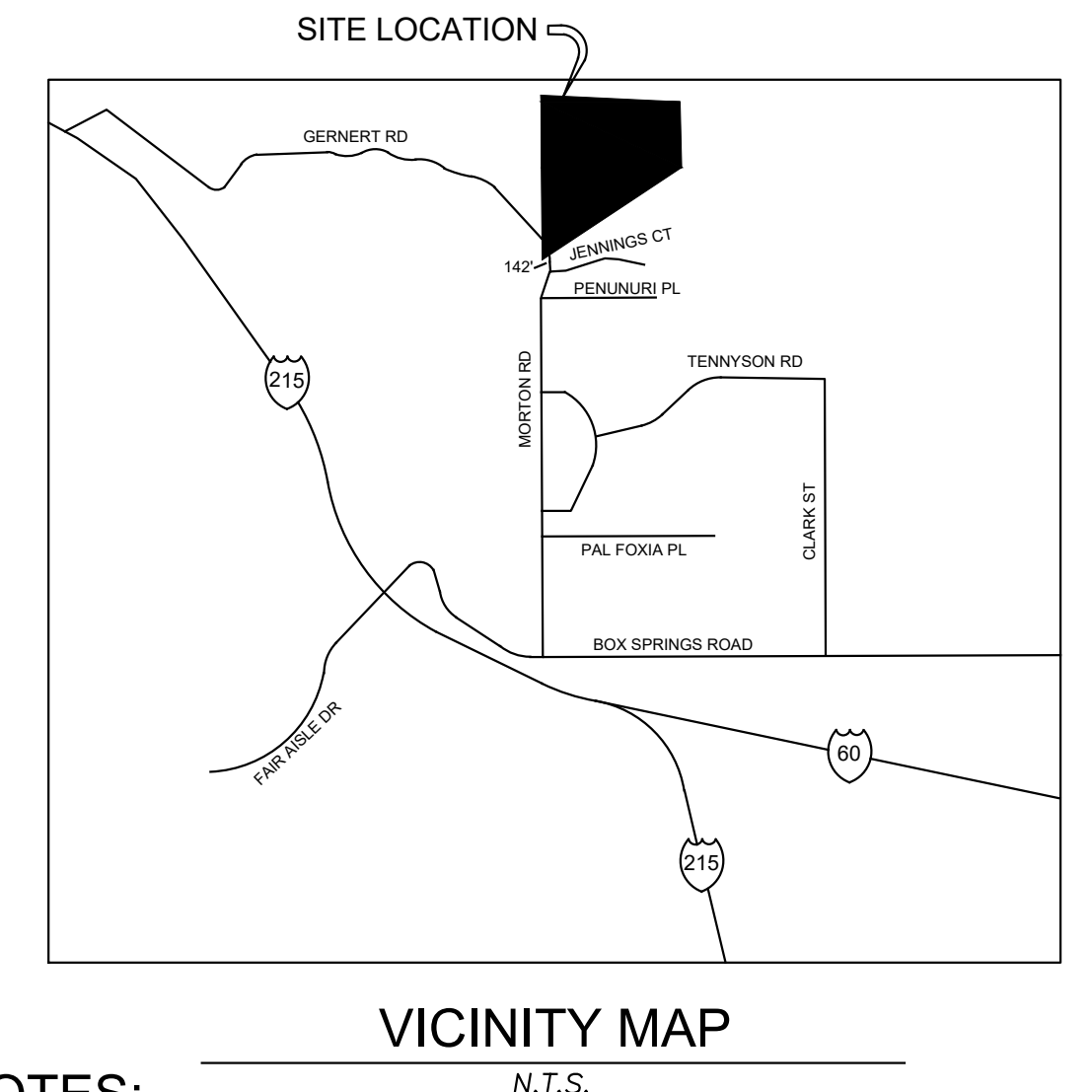
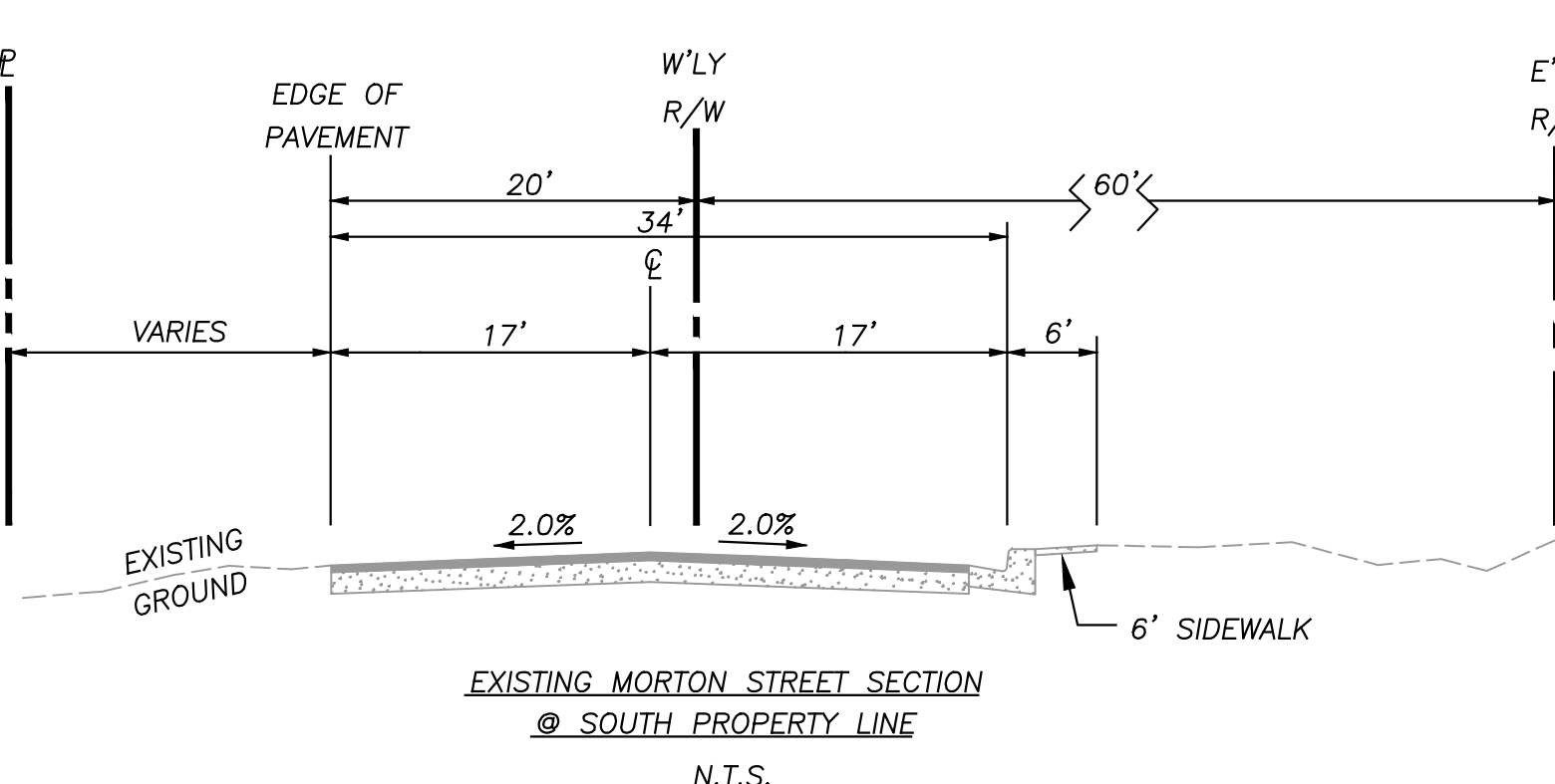
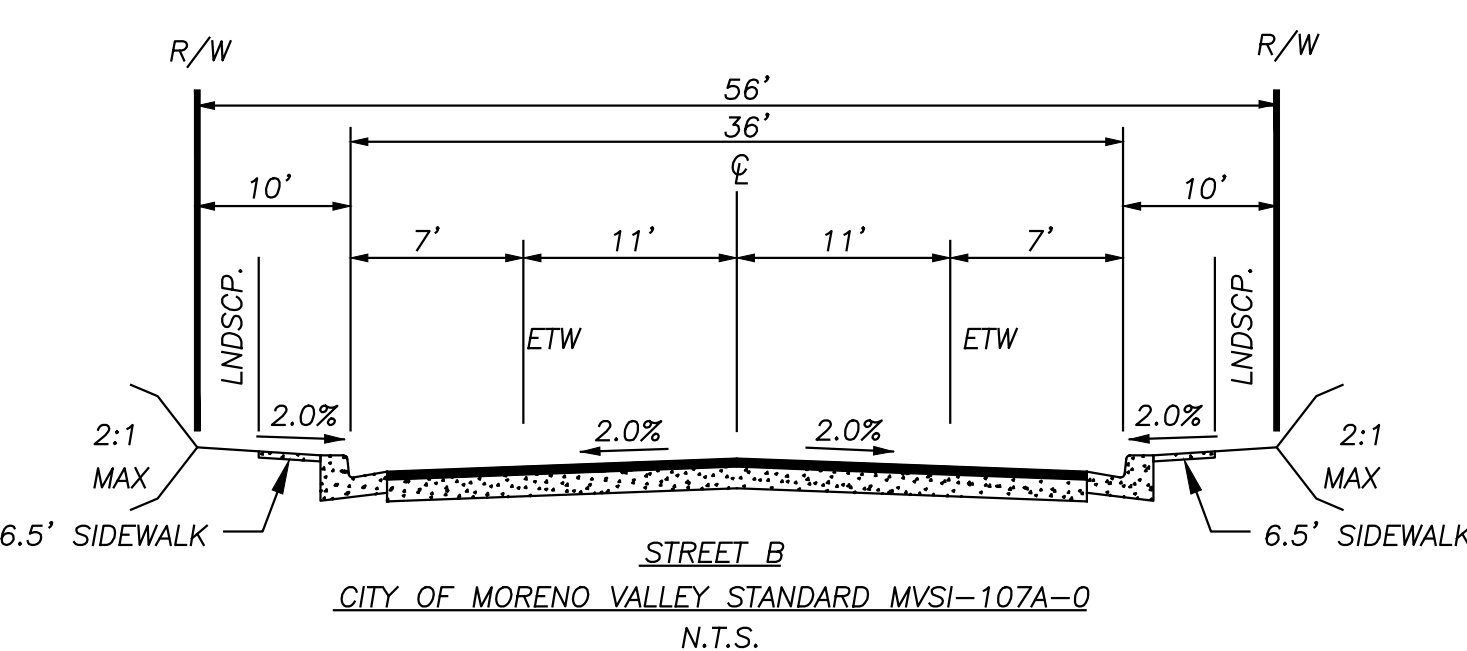
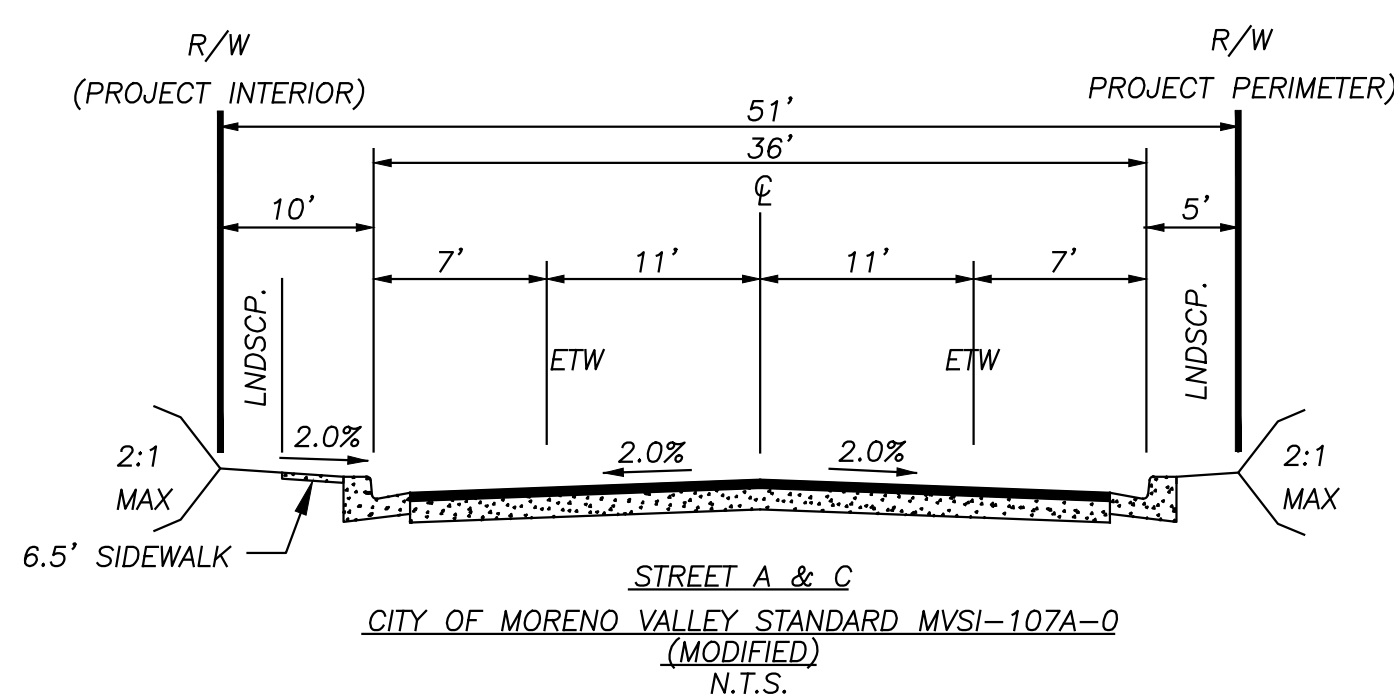
PARCEL NUMBER(S): 256-150-001

UTILITY PURVEYORS:

WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA. 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA. 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25634 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7500		

LEGEND

- FF FINISHED FLOOR
- FL FLOW LINE
- R/W RIGHT-OF-WAY
- BSL BUILDING SETBACK LINE
- FSL FIRE SEPARATION LINE
- S-S PROPOSED SEWER LINE
- W-W PROPOSED WATER LINE
- o- EXISTING SEWER LINE
- o- EXISTING WATER LINE
- o- DEVELOPMENT LIMITS
- PROJECT BOUNDARY CENTERLINE
- - - EXISTING DIRT ROAD
- PP POWER POLE
- OVERHEAD POWER LINE
- FUEL MODIFICATION ZONE
- DECORATIVE WALL
- GRADING DAYLIGHT LINE



GENERAL NOTES:

- APN: 256-150-001
- TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL-1FT.
- THE LAND DOES NOT LIE WITHIN AN ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP, PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
- THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
- THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
- THIS AREA IS NOT WITHIN FAULT ZONE.
- BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
- PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
- HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS, PARK, OPEN SPACE AND FUEL MODIFICATION AREAS.
- PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
- ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
- TO THE BEST OF OUR KNOWLEDGE, MORTON ROAD NORTHERLY OF JENNINGS COURT HAS NOT BEEN VACATED FROM THE CURVE ALIGNMENT THAT IS RECORDED ON PM27548.
- PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
- REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.

SITE DATA

TOTAL GROSS AREA.....	32.56 ACRES
TOTAL NET AREA.....	32.56 ACRES
PROPOSED R10 ZONE.....	16.59 ACRES
PROPOSED OPEN SPACE ZONE.....	15.97 ACRES
DEVELOPMENT AREA.....	16.59 ACRES
UNITS 1 - 108.....	2,100 S.F./EACH (ALL 2 STORY)
PARKING SPACES REQ'D.....	216 (ENCLOSED GARAGE)
PROVIDED.....	216 (ENCLOSED GARAGE)
PARK AREA.....	0.89 ACRES
BASIN A.....	12,131.24 S.F.
BASIN B.....	13,852.37 S.F.
STREET A, B, & C.....	2,447.60 L.F.
BUILDING SETBACKS	
FRONT/STREET SIDE.....	5' TO RIGHT OF WAY
MIN. BUILDING SEPARATION.....	6'
SIDE & REAR SETBACKS.....	5' MINIMUM TO TOP/TOE OF SLOPE (TOE OF SLOPE = H/2) (TOP OF SLOPE = H/3)

PROJECT LAND USE

EXISTING LAND USE.....VACANT
 PROPOSED LAND USE.....RESIDENTIAL
 EXISTING ZONING.....R2 AND HR
 PROPOSED ZONING.....R10 AND OS

SURROUNDING LAND USE

NORTH: HILLSIDE RESIDENTIAL (HR) & CONSERVATION (COUNTY OF RIVERSIDE)
 SOUTH: RESIDENTIAL MAX SDU/ACE (RS)
 EAST: HILLSIDE RESIDENTIAL (HR)
 WEST: GATEWAY CENTER SPECIFIC PLAN (COUNTY OF RIVERSIDE)



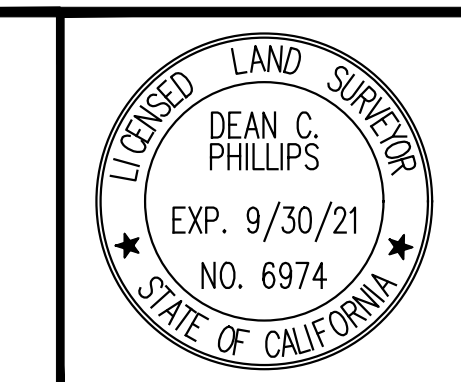
DEVELOPER:
 JASON ACKERMAN
 3200 GUASTI ROAD #100
 ONTARIO, CA 91761
 (909) 456-1460 OFFICE
 (909) 223-3302 MOBILE
 jason.ackerman@ackermaniawpc.com

OWNER/APPLICANT:
 SHIZAO ZHENG
 1378 WEST ZHONGSHAN ROAD
 NINGBO, CHINA 315-016
 (626) 666-1470

ENGINEER/PLAN PREPARER
 UNITED ENGINEERING GROUP CA, INC
 8885 HAVEN AVENUE, SUITE 195
 RANCHO CUCAMONGA, CA 91730
 (909) 466-9240 *203 OFFICE
 (909) 262-6677 MOBILE
 bcopper@unitedeng.com

NO.	REVISIONS DESCRIPTION	DATE

DESIGNED BY: CHRISTOPHER F. LENZ
 DRAWN BY: CIVIL
 CHECKED BY: R.C.E. No. 63001



DEAN C. PHILLIPS
 L.S. No. 6974
 dphillips@unitedeng.com



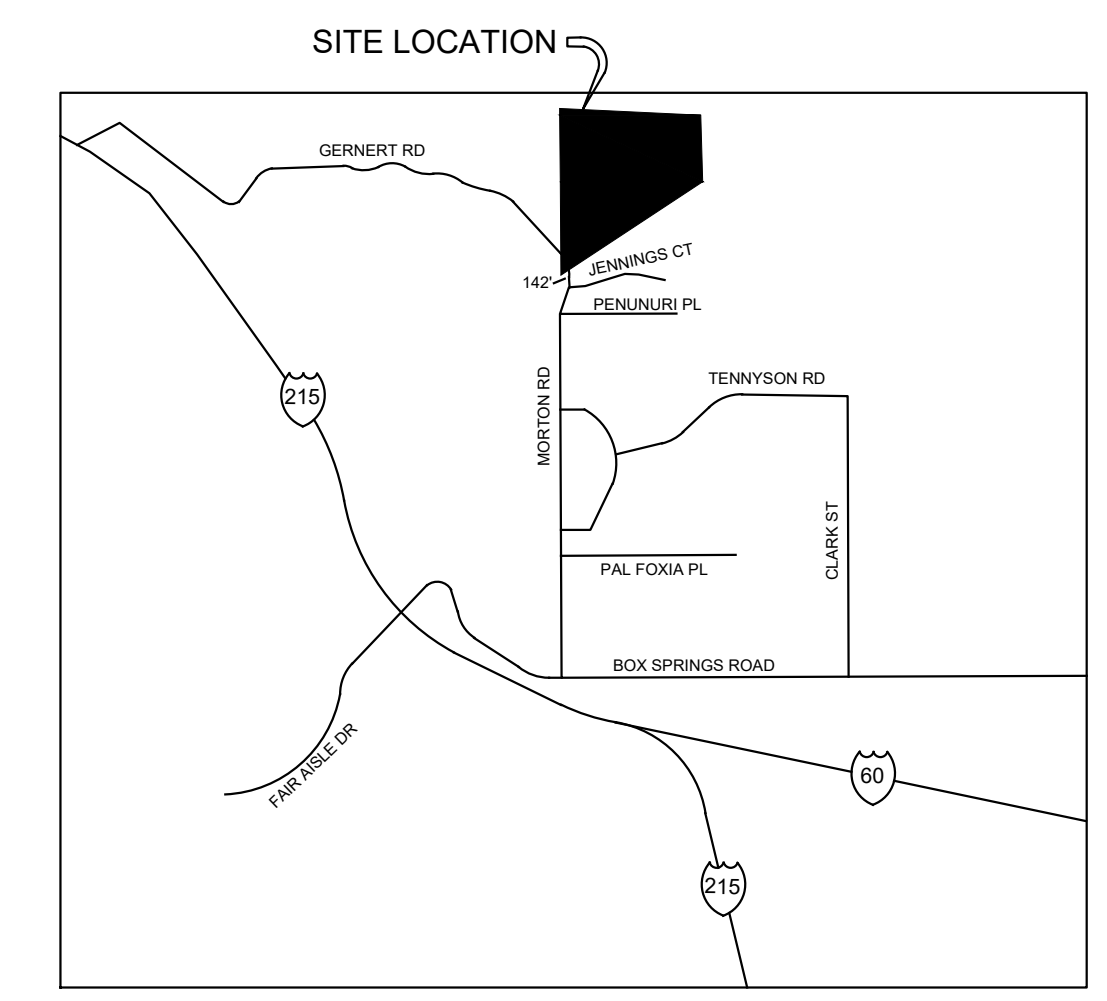
8885 Haven Avenue
 Suite 195
 Rancho Cucamonga,
 CA 91730
 Phone: 909.466.9240
 www.unitedeng.com

SITE PLAN	DECEMBER 2022
GATEWAY HEIGHTS CONDITIONAL USE PERMIT PEN21-0066	SHEET 1 OF 1
	PROJECT NUMBER CA-30182

PRELIMINARY GRADING PLAN (PEN21-0066)

BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN

UNited ENGINEERING GROUP CA., INC DECEMBER 2022

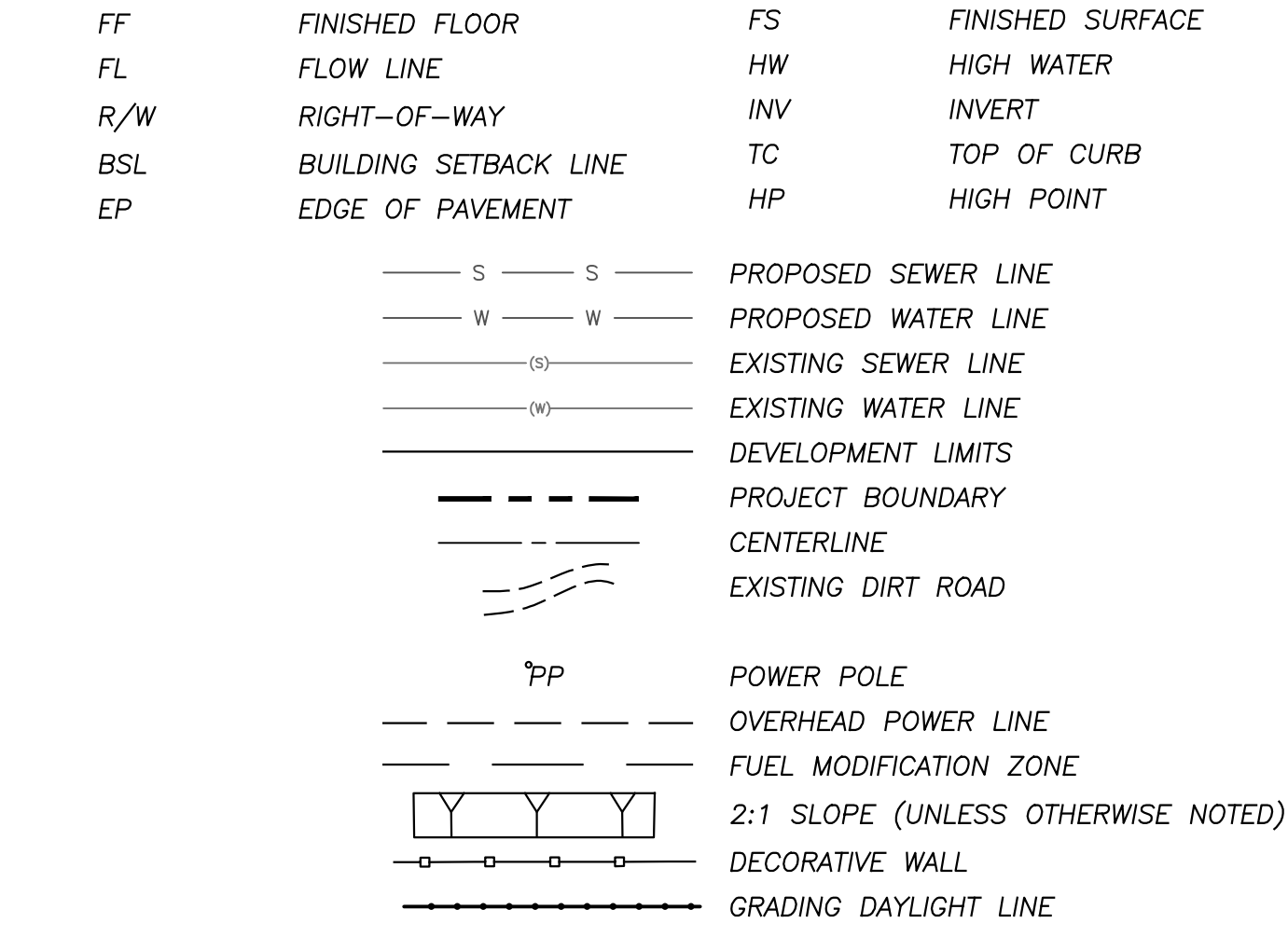


VICINITY MAP N.T.S.

GENERAL NOTES:

1. APN: 256-150-001
2. TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL-1FT.
3. THE LAND DOES NOT LIE WITHIN AN ALOUÏST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALOUÏST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP. PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
4. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
5. THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
6. THIS AREA IS NOT WITHIN FAULT ZONE.
7. BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
8. PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
9. HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS, PARK, OPEN SPACE AND FUEL MODIFICATION AREAS.
10. PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
11. ALL GRADING WORK SHOWN ON THIS PLAN SHALL BE DONE IN COMPLIANCE WITH CHAPTER 33 OF THE UNIFORM BUILDING CODE AND LOCAL ORDINANCE.
12. PRIOR TO ANY GRADING WORK, A GRADING PERMIT SHALL BE OBTAINED FROM THE CITY OF MORENO VALLEY BUILDING DEPARTMENT.
13. ALL GRADING SHALL CONFORM TO THE RECOMMENDATIONS AND REQUIREMENTS OF THE PRELIMINARY SOILS REPORT DATED SEPTEMBER 22, 2018 BY LGC GEO-ENVIRONMENTAL, INC.
14. ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
15. PADS 4, 5, AND 6 DEVIATE FROM THE STANDARD GRADING DETAILS TO DRAIN TOWARDS THE PARK, AWAY FROM THE STREET. AT FINAL DESIGN STORM DRAIN MAY BE REQUIRED TO COLLECT AND ROUTE FLOWS TO THE PARK AREA.
16. PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
17. REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORNINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.
18. OFFSITE AREA OUTSIDE OF PROJECT TOPOGRAPHY LIMITS. AT FINAL DESIGN AND IN CONJUNCTION WITH LINE B DESIGN, ADDITIONAL DESIGN SURVEY WILL BE REQUIRED.
19. STREET LIGHT DESIGN TO COMPLY WITH CITY STANDARDS. STREET LIGHT DESIGN PLANS TO BE PREPARED WITH FINAL DESIGN DRAWINGS.

LEGEND



ESTIMATED EARTHWORK QUANTITIES (RAW)

CUT: 90,148 CU. YDS. FILL: 56,011 CU. YDS.

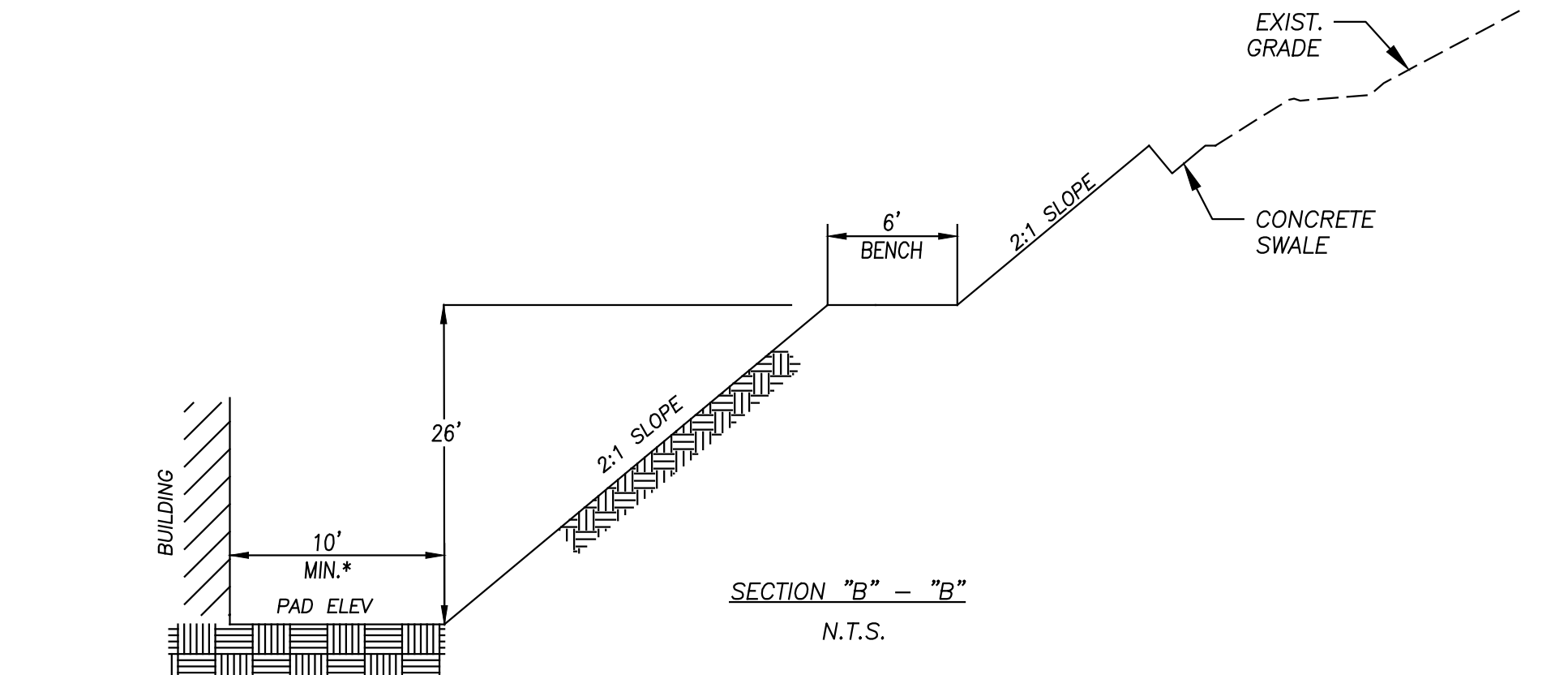
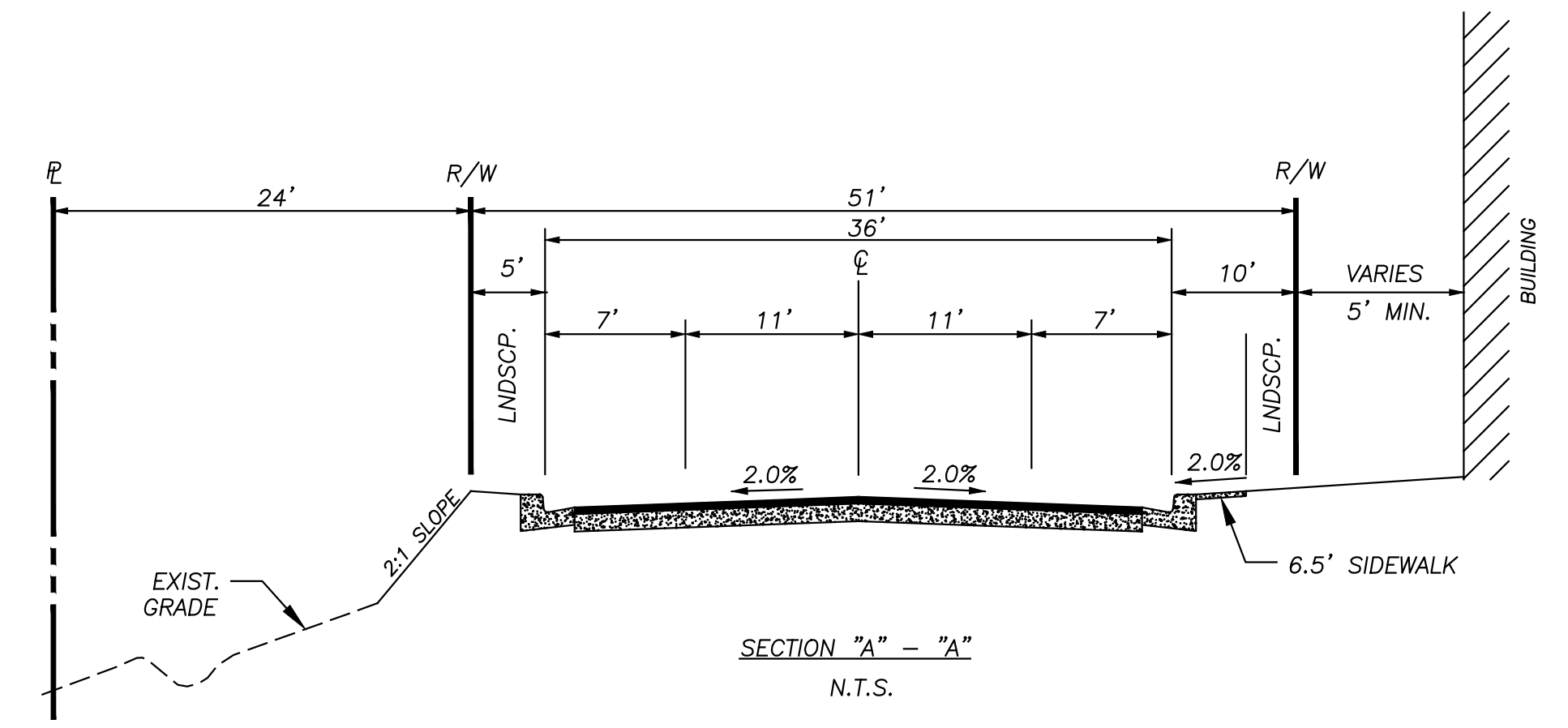
NOTE: THE ABOVE QUANTITIES DO NOT REFLECT ANY SWELLING, SUBSIDENCE, OVER EXCAVATION, OR ANY SPECIAL CONDITIONS THAT MAY BE SPECIFIED IN THE PRELIMINARY SOILS REPORT AND ARE FOR REFERENCE AND FEE PURPOSES ONLY. SINCE THE ENGINEER CANNOT CONTROL THE EXACT METHOD OR MEANS USED BY THE CONTRACTOR DURING GRADING OPERATIONS, NOR CAN THE ENGINEER GUARANTEE THE EXACT SOIL CONDITION OVER THE ENTIRE SITE, THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE FINAL EARTHWORK QUANTITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THEIR OWN EARTHWORK QUANTITIES FOR BIDDING, CONTRACT, AND CONSTRUCTION PURPOSES.

UTILITY PURVEYORS:

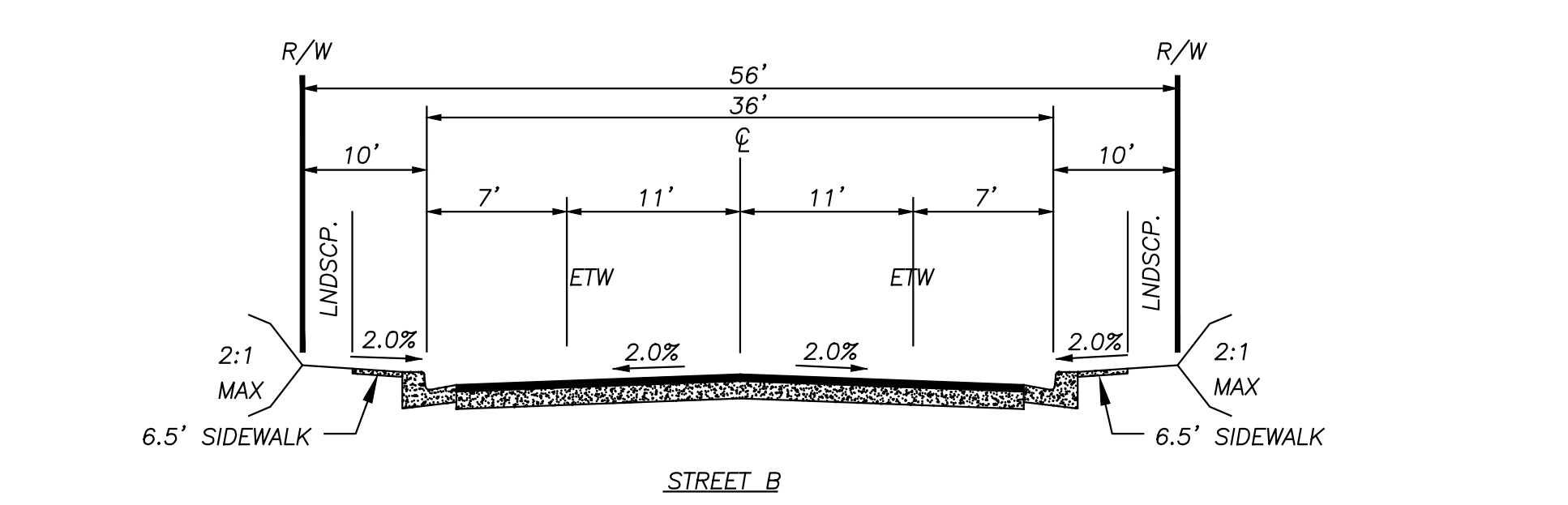
WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA. 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA. 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25634 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7500		

PROJECT DISTURBANCE:

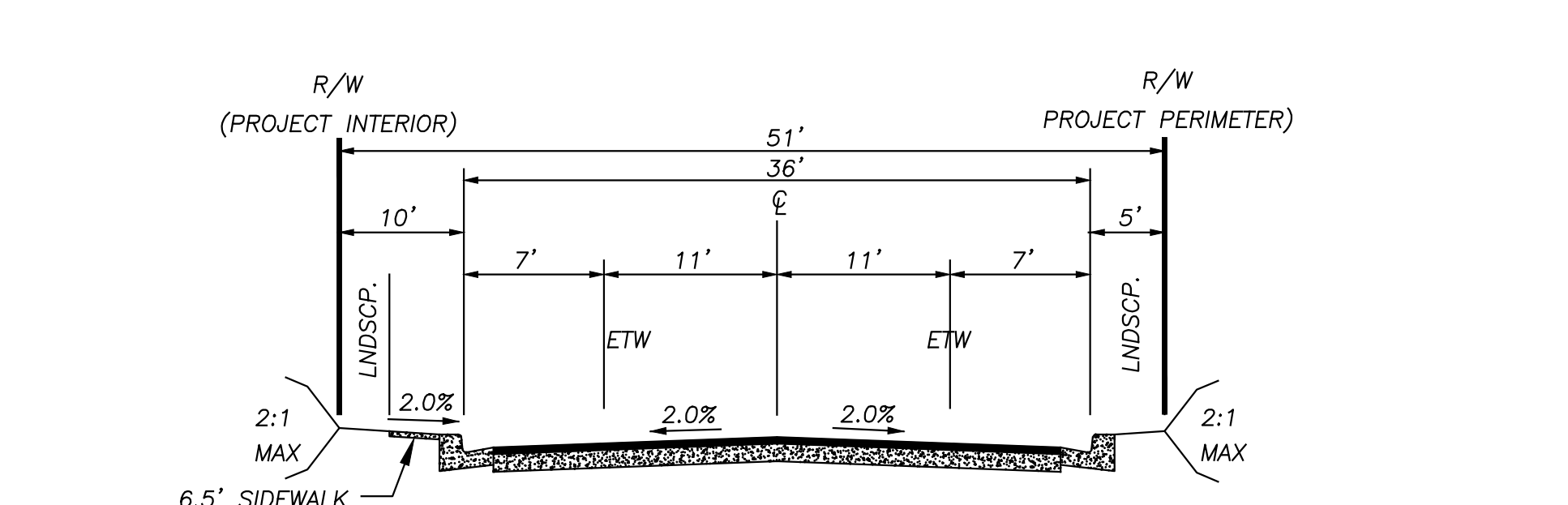
GROSS SITE AREA: 32.80 AC
NET SITE AREA (AREA OF DISTURBANCE): 15.43 AC
TOTAL IMPERVIOUS SURFACE AREA: 10.03 AC



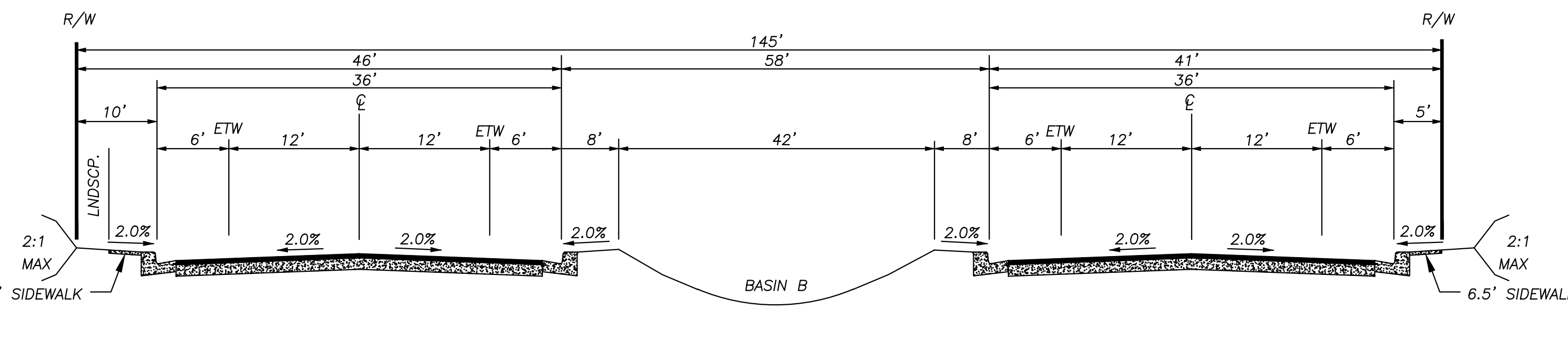
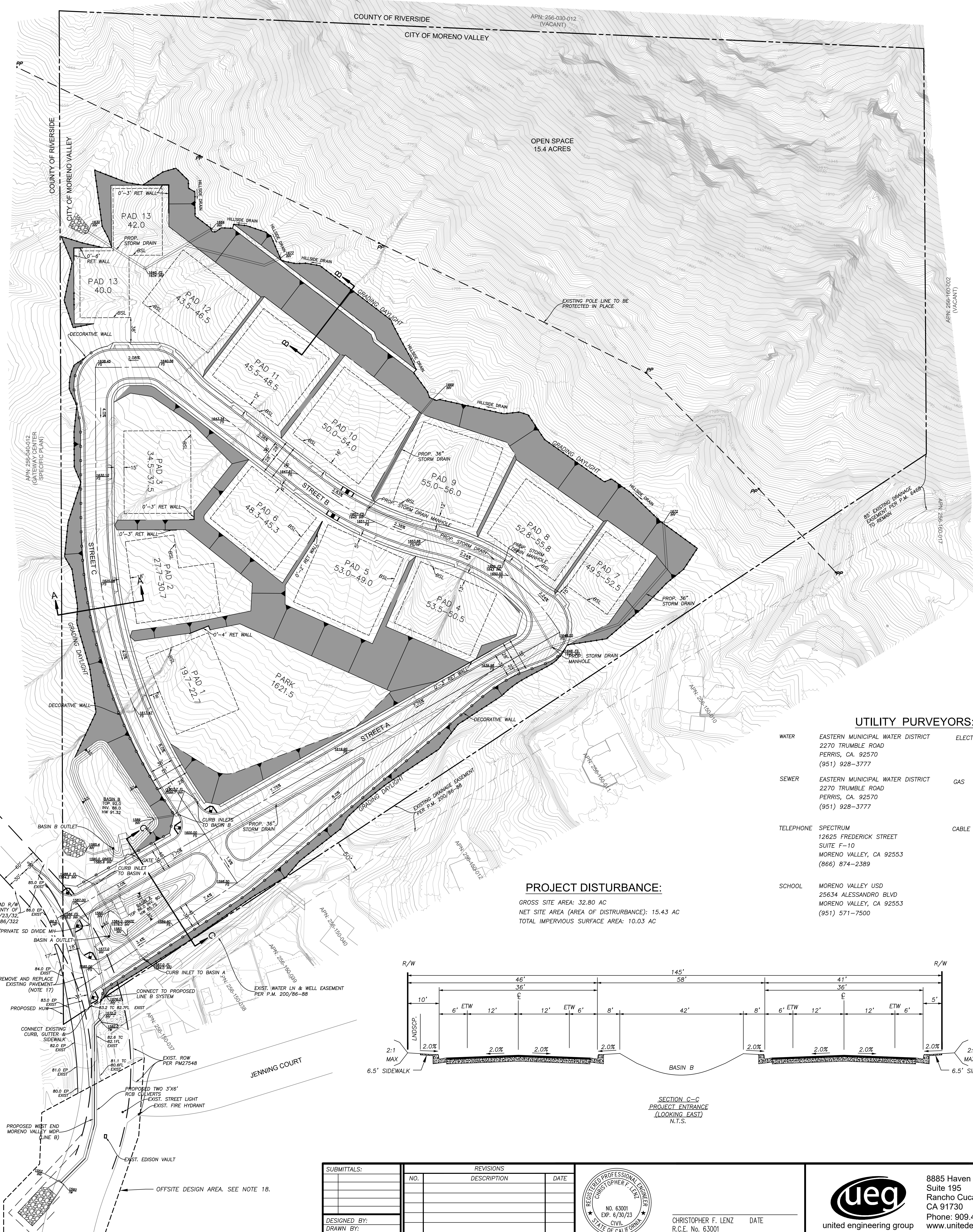
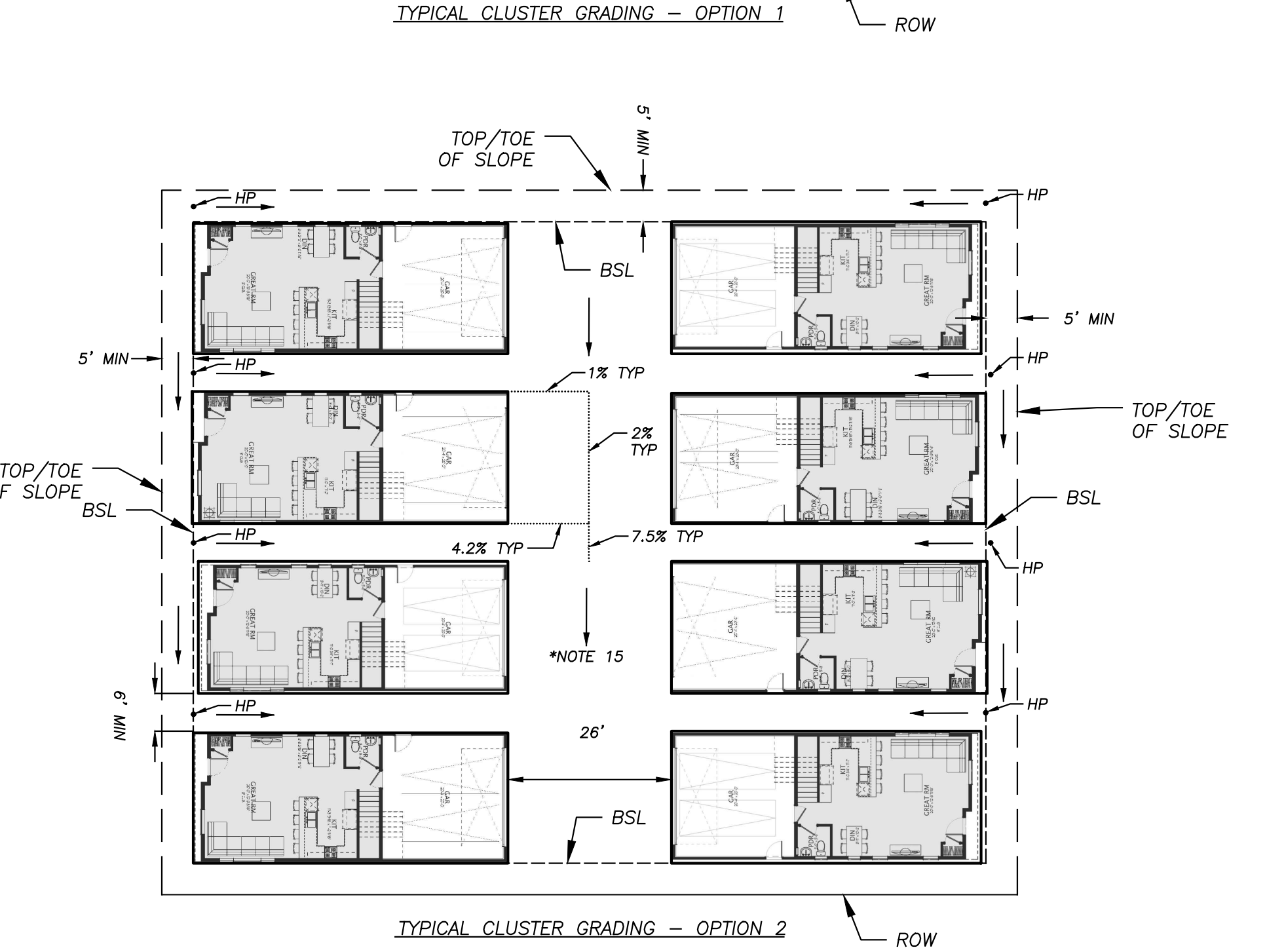
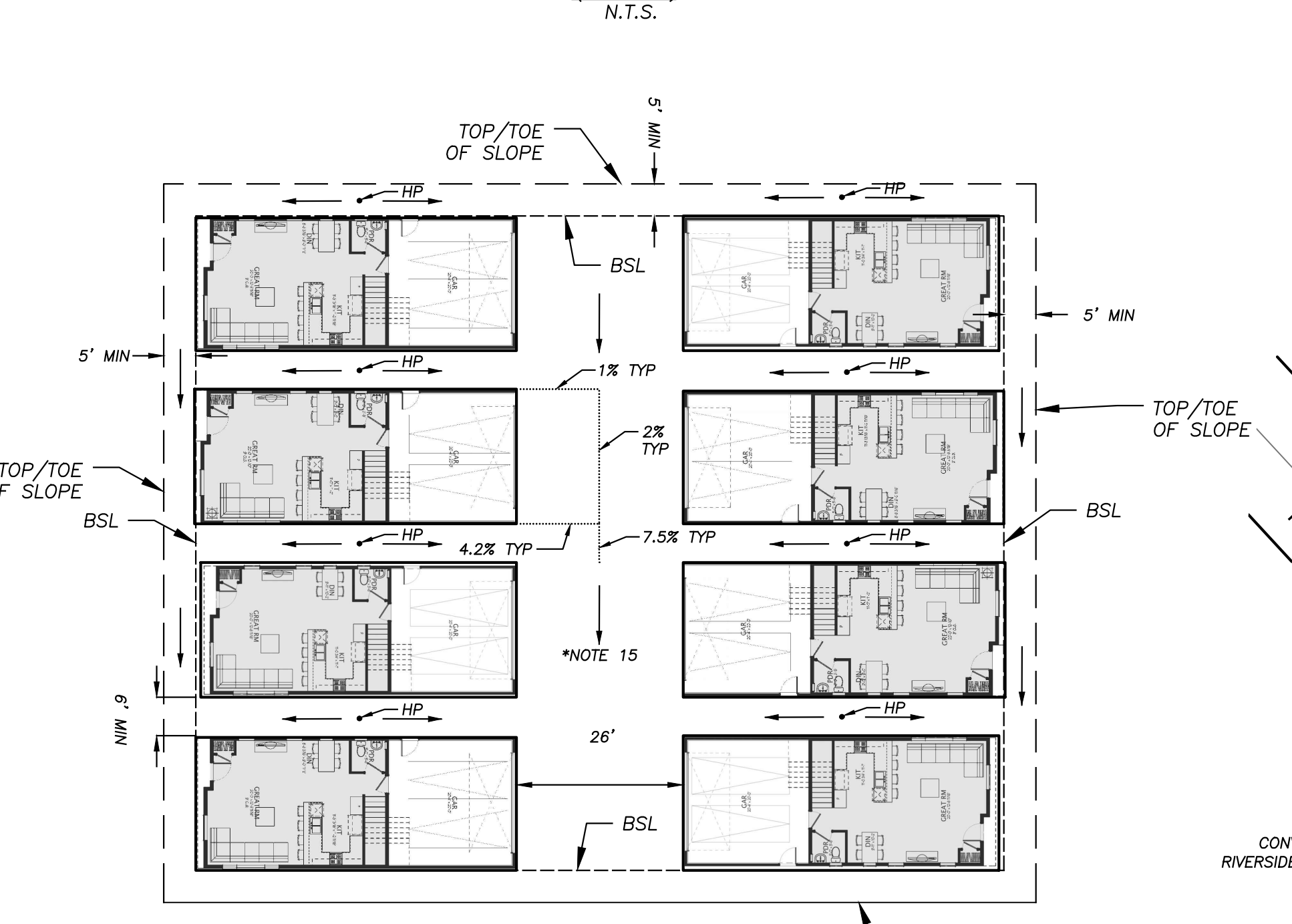
* MINIMUM SETBACKS PER CALIFORNIA BUILDING CODE 1808.7:
- TOE OF SLOPE = AT LEAST THE SMALLER OF H/2 OR 15'
- TOP OF SLOPE = AT LEAST THE SMALLER OF H/3 OR 40'



CITY OF MORENO VALLEY STANDARD MVS1-107A-0 N.T.S.



CITY OF MORENO VALLEY STANDARD MVS1-107A-0 (MODIFIED) N.T.S.



SUBMITTALS:		REVISIONS		DATE
NO.	DESCRIPTION	NO.	DESCRIPTION	DATE

DESIGNED BY: _____ DATE: _____
DRAWN BY: _____
CHECKED BY: _____

REGISTERED PROFESSIONAL ENGINEER
NO. 63001
EXP. 6/30/23
CIVIL
STATE OF CALIFORNIA

CHRISTOPHER F. LENZ DATE: _____
R.C.E. No. 63001

8885 Haven Avenue
Suite 195
Rancho Cucamonga, CA 91730
Phone: 909.466.9240
www.unitedeng.com

PRELIMINARY GRADING PLAN

GATEWAY HEIGHTS
CONDITIONAL USE PERMIT
PEN21-0066

DECEMBER 2022
SHEET 1 OF 1
PROJECT NUMBER
CA-30182

6.0 ARCHITECTURE

The architectural guidelines in this manual have been developed to ensure architectural continuity and compatibility throughout the project; to promote a distinctive architectural theme; and to avoid a mundane repetition of too similar architectural design elements. These guidelines will provide a set of basic concepts for development but are not meant to limit future creativity in design.

These styles and concepts should be incorporated to provide a variety of quality housing types.

6.1 General Guidelines

The following general guidelines should be considered in the designing and layout of the project:

- A common set of design style and design elements should be included throughout the project.
- Long unarticulated building facades should be avoided
- Natural building materials should be varied throughout the project, avoiding long stretches of similar street scene
- Offset roof planes, columns, vertical and horizontal articulation or other projecting architectural features shall occur on those facades of the residence that are visible from the street or open space
- The visual impact of garages shall be reduced to the maximum extent practicable

6.2 Architectural styles

Two architectural styles have been set forth as examples in this document to begin to identify and illustrate the intent and objective of these design guidelines in terms of architectural style and variety. Santa Barbara and Modern Farmhouse architectural styles are discussed in the following pages and depicted in **Figures 1 & 2** to establish the types and level of architectural detail which will assist in achieving the project design objectives. Discussions of each of these styles as well as illustrations of typical elevations and features are located on the following pages.

6.2.1 Santa Barbara

Santa Barbara style is an architectural and interior design style derived from Mediterranean and Spanish-revival architecture, often characterized by deep red tones and polished wood textures that contrast with stark white walls.

Santa Barbara style architecture and interior design are characterized by white stucco walls, exposed beam ceilings, red-tile roofs and floors, arcades, and courtyards.

Figure 1 – Santa Barbara



Features typical of the Santa Barbara style include:

- White stucco walls
- Exposed beam ceilings
- Tile roofs
- Shutters
- Decorative Vents

6.2.2 Modern Farmhouse

The Modern farmhouse style combines practical elements (simple floor plan, white walls) with rustic materials (wood floors, hand-hewn beams, and wrought-iron hardware). And you'll see this style throughout the U.S., with regional variations. For example, you might spot a Dutch door or two in a New England farmhouse, or wraparound porches on homes in the Deep South

Features typical of the Modern Farmhouse style include:

- Reclaimed wood
- Barnboard details
- Wrought iron accents
- Wide plank floors
- Rafter Tails
- Stone Veneers

Figure 2 – Modern Farmhouse



7.0 UTILITIES

Currently the site is undeveloped and the site does contain some existing overhead electrical lines as well as water and sewer lines located in Morton Rd. All existing and new onsite utilities that will serve the subject site will be placed underground except as approved by Public Works. Operation and maintenance of all utilities and facilities will be managed by the appropriate operating entity upon approval and completion of construction. Sewer facilities, water facilities, streetlights, and fire hydrants will be provided according to the appropriate agency’s guidelines, per the recommendations of Public Works and City of Moreno Valley Fire Departments and other governmental regulations applicable to the construction of various facilities.

Utility Providers

Services	Provider	Location
Electrical	Southern California Edison	At site
Telephone	Spectrum	TBD
Cable	Spectrum	TBD
Natural Gas	Southern California Gas Company	TBD
Water	Eastern Municipal Water District	At site
Sanitary Sewer	Eastern Municipal Water District	At site
Fire & Emergency	City of Moreno Valley Fire Dept	TBD

8.0 COVENANTS, CONDITIONS AND RESTRICTIONS (CC&R'S)

Table 8-1 below details the maintenance responsibilities for the various utilities and common areas within Gateway Heights. A majority of the common areas will be maintained by a Home Owners Association (HOA). The HOA will be established in conjunction with development of the project. CC&R's for Gateway Heights that include language for the establishment of a HOA and provisions for creation of liens in conjunction with the HOA, for maintenance funding, will be provided prior to recordation of the final map.

MAINTENANCE RESPONSIBILITY				
Table 8-1				
	Home Owners Association	City of Moreno Valley	Riverside County Flood Control	Eastern Municipal Water District
Onsite Storm Drain	X			
Basin A	X			
Basin B	X			
Line B (across Morton Rd)			X	
Headwalls			X	
Water	X			
Sewer				X
Streets	X			
Landscaping	X			
Entry Monuments	X			
Paseos & Parkways	X			
Park	X			

APPENDIX 1

FIRE PROTECTION TECHNICAL REPORT

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

TECHNICAL FIRE PROTECTION MEMORANDUM

To: Douglas Bloom, Fire Marshal, Moreno Valley Fire Department
From: Dudek Fire Protection Planning Team, Michael Huff, Director
Subject: Gateway Heights Project Fire Hazard Analysis and Approach
Date: 01/30/2023
cc: Jason Ackerman, Esq., Ackerman Law
Attachment(s): Figures 1-2
 Attachment 1 – Site Aerial Photograph
 Attachment 2 – Fuel Modification Plan
 Attachment 3 – Site Plan with Revised Dual Project Access

This Technical Fire Protection Memorandum documents fire protection planning related to project constraints analysis for the subject project. The approach outlined herein responds to your recommended direction during several meetings and communications regarding the site and its required fire protection features, including emergency ingress/egress to/from the project site and defensible space areas.

Project description

The proposed Gateway Heights development is a 108 unit detached townhouse project on an approximately 33-acre site in the City of Moreno Valley.

- “Detached townhouses” (townhouses by CBC definition are attached; structures are likely to be considered SFDs per code¹)
- Structures are separated 6’ apart.
- Structures are two-story townhouses
- Proposed 16-acre open space lot north of the developed project site

¹ 2022 California Building Code, Chapter 2: Definitions, Section 202 Definitions

Existing Site Observations

Onsite

- Attachment 1 provides a site aerial photograph.
- Vegetation is primarily scattered sage scrub, forbs, and scattered native shrubs and a few ornamental trees in the northeast corner;
- Unmaintained roads/trails traverse the property;
- Evidence of recent fuel reduction activities are present on site.

Topography

The project site is relatively flat, with a slight upslope gradient to the north; beyond the project to the north is a steep, rocky hillside with sparse scrub and forb vegetation. To the west and south the terrain has gently rolling hills with intermittent drainages. Along the eastern edge of the property is a drainage channel strewn with boulders. To the east of the project is a residential subdivision.

Vicinity

The project is located in the northeast area of the City of Moreno Valley. The western and northern property lines coincide with the city limits; the lands immediately to the west and north of the property are within unincorporated Riverside County.

- North: open space;
- East of northern open space lot: open space;
- Southeast of project site: residential development;
- West: open space.

Proposed site plan review / code compliance issues

Issues to address:

- Driveway lengths: proposed lengths are all less than 150 feet in length and are 24' wide.

- Hose pull distances: will be greater than 150' distance to two or more units along the driveways for Pads 2, 5, 7 and 9 through 13. However, the fire code official is authorized to increase the 150-foot distance since all units will be equipped throughout with automatic fire sprinkler systems.²
- Fuel modification width: 100-foot FMZ can be provided for most units (Attachment 2). The western most units on Pad 13 (NW corner) are 30 feet from the property line; the units on Pad 7 are 69 feet from the property line; The proposed FMZ reduction has been mitigated with placement of non-combustible walls along the property line adjacent to these two buildings as depicted in Attachment 2.

Primary access

Primary access is proposed using Morton Road on the southern side of the project, which has access to Box Springs Road and the SR60/I-215 Freeway.

Secondary access

In reviewing the Moreno Valley Fire Code, there is no reference identified whereby a secondary access is required for the project. CFC 503.1.2 authorizes the fire code official to require more than one access road based on the potential for impairment of a single road, but it does not require that an additional access road must be provided.

The project design provides two 36' foot wide roadways at the entrance to minimize any potential traffic congestion during an emergency setting; one for ingress and one for egress (see Attachment 3). Each entrance roadway connects to separate "legs" of the internal circulation loop road allowing for approximately half of the occupants to exit in each of two distinct directions without conflict. Based on discussions with the FD, the proposed loop road design with a dual widened roadway entrance meets the intent of the code and will be accepted.

Internal circulation

- Loop road system;
- Direct access is provided to all structures;
- Unobstructed internal circulation loop roadway width of 24 feet;

Fuel modification and Vegetation Management

A preliminary fuel modification landscape plan has been prepared and submitted for review and approval.

The two "legs" of the internal circulation loop road, along the eastern and western edges of the project, will be located between the property line and structures providing a paved, non-combustible, defensible space as part of the fuel modification zone.

The project will also comply with the following requirements related to fuel modification and vegetation management outlined in the 2022 California Fire Code. The Project-provided fuel modification landscape plan provides additional details on the Project's consistency with these requirements and has been submitted for review

² CFC Sec. 503.1.1, Exception 1.1

to Moreno Valley Fire Department (MVFD). Fencing, decking and/or mulch will be consistent with requirements for fire hazard severity zones and WUI areas, specifics of which will be included in the project's landscape plan and will be to MVFD approval.

CFC 4903.2.1.2 Final Fire Protection Plan and Ongoing Maintenance

The project HOA is legally responsible for the maintenance of Fuel Modification Zones. HOA maintenance responsibilities concerning Fuel Modification Zones will be incorporated into the HOA's covenants, conditions, and responsibilities (CC&Rs) to the approval of the MVFD.

CFC 4906.1 General

Planting of vegetation for new landscaping shall be selected to reduce non-fire-resistant vegetation in proximity to a structure and to maintain vegetation as it matures.

CFC 4906.2 Application

All new plantings of vegetation in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA) designated as a Very High Fire Hazard Severity Zone shall comply with Sections 4906.3 through 4906.5.3.

CFC 4906.3 Landscape Plans

Landscape plans shall be provided when required by the enforcing agency. The landscape plan shall include development and maintenance requirements for the vegetation management zone adjacent to structures and roadways, and to provide significant fire hazard reduction benefits for public and firefighting safety.

CFC 4906.3.1 Contents

Landscape plans shall contain the following:

1. Delineation of the 30-foot (9144 mm) and 100-foot (30.5 m) fuel management zones from all structures.
2. Identification of existing vegetation to remain and proposed new vegetation.
3. Identification of irrigated areas.
4. A plant legend with both botanical and common names, and identification of all plant material symbols.
5. Identification of ground coverings within the 30-foot (9144 mm) zone.

CFC 4906.4 Vegetation

All new vegetation shall be fire-resistant vegetation in accordance with this section.

Exception: Trees classified as non-fire-resistant vegetation complying with Section 4906.4.2.1.

To be considered fire-resistant vegetation, it must meet at least one of the following:

1. Be identified as fire-resistant vegetation in an approved book, journal or listing from an approved organization.
2. Be identified as fire-resistant vegetation by a licensed landscape architect with supporting justification.
3. Plants considered fire-resistant vegetation and approved by the local enforcing agency.

CFC 4906.4.1 Shrubs

All new plantings of shrubs shall comply with the following:

1. Shrubs shall not exceed 6 feet (1829 mm) in height.
2. Groupings of shrubs are limited to a maximum aggregate diameter of 10 feet (3048 mm).
3. Shrub groupings shall be separated from other groupings a minimum of 15 feet (4572 mm).
4. Shrub groupings shall be separated from structures a minimum of 30 feet (9144 mm).
5. Where shrubs are located below or within a tree's drip line, the lowest tree branch shall be a minimum of three times the height of the understory shrubs or 10 feet (3048 mm), whichever is greater.

CFC 4906.4.2 Trees

Trees shall be managed as follows within the 30-foot (9144 mm) zone of a structure:

1. New trees shall be planted and maintained so that the tree's drip line at maturity is a minimum of 10 feet (3048 mm) from any combustible structure.
2. The horizontal distance between crowns of new trees and crowns of adjacent trees shall not be less than 10 feet (3048 mm).
3. Existing trees shall be trimmed to provide a minimum separation of 10 feet (3048 mm) away from chimney and stovepipe outlets per Title 14, Section 1299.03.

CFC 4906.4.2.1 Non-Fire-Resistant Vegetation

New trees not classified as fire-resistant vegetation, such as conifers, palms, pepper trees and eucalyptus species, shall be permitted provided the tree is planted and maintained so that the tree's drip line at maturity is a minimum 30 feet (9144 mm) from any combustible structure.

Defensible Space

The project will comply with the following defensible space requirements outlined in the 2022 California Fire Code.

CFC 4907.1 General

Hazardous vegetation and fuels shall be managed to reduce the severity of potential exterior wildfire exposure to buildings and to reduce the risk of fire spreading to buildings as required by applicable laws and regulations. Defensible space will be managed around all buildings and structures in State Responsibility Areas (SRA) as required in Public Resources Code 4291.

CFC 4907.2 Application

Buildings and structures located in the following areas shall maintain the required hazardous vegetation and fuel management:

1. All unincorporated lands designated by the State Board of Forestry and Fire Protection as a State Responsibility Area (SRA).
2. Land designated as a Very High Fire Hazard Severity Zone by the Director.
3. Land designated in ordinance by local agencies as a Very High Fire Hazard Severity Zone pursuant to Government Code Section 51179.

CFC 4907.3 Requirements

Hazardous vegetation and fuels around all buildings and structures shall be maintained in accordance with the following laws and regulations:

1. Public Resources Code, Section 4291.
2. California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 3, Article 3, Section 1299.03.
3. California Government Code, Section 51182.
4. California Code of Regulations, Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07.

Relevant code sections:

Chapter 7A of the 2022 California Building Code

All new Project buildings will comply with the ignition resistant construction requirements of California Building Code Chapter 7A. Per Chapter 7A, buildings located in any Fire Hazard Severity Zone or any Wildland-Urban Interface (WUI) Fire Area designated by the enforcing agency constructed after the application date shall comply with Chapter 7A provisions. This includes all new buildings with residential, commercial, educational, institutional or similar occupancy type use, which are referred to as "applicable building(s)" (see definition in Section 702A), as well as new buildings and structures accessory to those applicable buildings

The Project's buildings will comply with the following construction and materials requirements identified in the following sections:

- 704A Ignition Resistant Construction
- 705A Roofing
- 706A Vents
- 707A Exterior Covering
- 708A Exterior Windows, Skylights and Doors
- 709A Decking
- 710A Accessory Buildings and Miscellaneous

California Residential Code R337. Materials and Construction Methods for Exterior Wildfire Exposure

Minimum standards for a new building located in a WUI area to resist the intrusion of flame or burning embers projected by a vegetation fire.

California Residential Code R337.1.4. Inspection and Certification.

The local building official shall, upon completion of construction, provide the owner or applicant with a copy of the final inspection report that demonstrates the building was constructed in compliance with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter. Issuance of a certificate of occupancy by the local building official for the proposed building shall be considered as complying with this section.

California Fire Code 503.1.2 Additional access.

Authorizes the fire code official to require more than one access road based on the potential for impairment of a single road, but it does not require that an additional access road must be provided.

Moreno Valley Fire Code Amendments

- 503.2.1 Fire apparatus access roads – 24 feet wide
- 903.2 Single Family Dwellings shall have automatic fire sprinkler systems
- 4906.4 Fuel Modification Requirements for New Construction. Must meet the criteria established by Riverside County Fire Department (Information Bulletin #08-05). Submit a Fuel Modification Plan; indicate setback, irrigated and thinning zones (30' Green Zone; 100' total defensible space).
- App B. Fire Flow and Hydrant Spacing

Fire environment assessment

The project site's fire environment assessment was performed by Dudek fire protection planners with extensive similar experience throughout California over the last 25 years.

- The site is located within a Very High Fire Hazard Severity Zone³.
- At the time of the site assessment, there was no evidence of recent fire on site (no visible signs); fire history data⁴ indicates the site has had 77 fires within a five-mile radius and the site itself has burned four times since 1980 and most recently in 2001 (Watkins Fire).
- Vegetation on site and to the north, west and south is sparse and low growing, which would reduce the impacts from a wildland fire;

³ FRAP (Fire and Resource Assessment Program). 2008. California Department of Forestry and Fire Protection. Fire Hazard Severity Zones (Adopted in 2007). Accessed at: <http://frap.cdf.ca.gov/>.

⁴ FRAP (Fire and Resource Assessment Program). 2020. California Department of Forestry and Fire Protection. Fire Perimeters through 2020. Accessed at: <http://frap.cdf.ca.gov/>.

- Adjacent hillslopes to the north exist up and away from the project site. This reduces wildfire risks at the project site as wildfire is more likely to spread at slower rates when moving downslope compared to an upslope direction.
- The project may be subject to an approaching wildland fire from the northeast during Santa Ana wind conditions. While direct impacts from wildfire cannot be completely ruled out, structural ignition risks from ember cast are minimal given modern construction requirements in alignment with Chapter 7A of the California Building Code.

Fire Behavior assessment

- Selected fuel models Sh1 (low load, dry climate shrub) and Sh2 (moderate load, dry climate shrub) to represent the existing vegetative fuels. Site photographs provided in Attachment 4 depict the fuels present on and adjacent to the project site.
- Selected wildland fire run scenarios from the NE and SW representing an offshore Santa Ana wind event and an onshore wind event. Santa Ana wind events represent “worst-case” conditions and represent the highest wind speeds and lowest fuel moistures likely to occur at the project site.
- Conducted fire behavior modeling using the BehavePlus 6 modeling system for existing conditions and post-development fuel modification (see results in Table 1). The location of model runs is provided in Figure 1.

Table 1. Fire Behavior Modeling Results

Fire Scenarios	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
<i>Scenario 1: 15% slope, 40 mph NE wind</i>				
Fuel Model Sh1 (scrub/mustard)	8.4	584	1.0	0.7
Fuel Model Sh2 (scrub/mustard)	14.1	1,781	0.8	0.9
<i>Scenario 1 Fuel Mod: 10% slope, 40 mph NE wind</i>				
Fuel Model 8 (irrigated landscaping)	2.6	46	0.1	0.3
<i>Scenario 2: 15% slope, 20 mph SW wind</i>				
Fuel Model Sh1 (scrub/mustard)	8.5	589	1.0	0.7
Fuel Model Sh2 (scrub/mustard)	14.1	1,796	0.8	0.9

Table 1. Fire Behavior Modeling Results

Fire Scenarios	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
<i>Scenario 2 Fuel Mod: 15% slope, 20 mph SW wind</i>				
Fuel Model 8 (irrigated landscaping)	2.6	46	0.1	0.3

An additional assessment was conducted to determine fire behavior during a Santa Ana wind event (worst-case weather conditions) in areas adjacent to the project site using the FlamMap software package. Direct impacts from wildfire are not likely at the project site due to flame lengths less than 20 feet in adjacent lands and the planned Fuel Modification Zones.

The following paragraphs provide descriptions of the inputs used in processing the FlamMap model. In addition, data sources are cited, and any assumptions made during the modeling process are described. A graphical representation of the model results is provided in Figure 2

Elevation

The elevation data file represents units of meters above mean sea level (AMSL). Elevations in the FlamMap analysis area range from 1,585 to 2,625 feet AMSL. Elevation data is a required input file for FlamMap runs and are necessary for adiabatic adjustment of temperature and humidity and for conversion of fire spread between horizontal and slope distances.

Slope

The slope data file represents values in degrees of inclination from horizontal. Slope values in the FlamMap analysis area range from 0–32 degrees. The slope input file is necessary for computing slope effects on fire spread and solar radiance.

Aspect

The aspect data file represents values in azimuth degrees. Aspect values are important in determining the solar exposure of grid cells.

Wind and Fuel Moisture

Wind speed and fuel moisture values for the FlamMap analysis utilized the same values as those used in the BehavePlus runs for Santa Ana weather scenarios. Wind and fuel moisture data was collected from local RAWS stations (Stations 045624 (Clark) and 045617 (Beaumont)). The FireFamilyPlus 6.0 software package was utilized to analyze local RAWS station data to empirically determine Santa Ana weather

conditions representative of those which have occurred previously at the project location. Wind alignment and speeds were determined and set to 70 degrees and 40 mph respectively.

Fuel Model

The fuel model data file was based on the 40 Scott and Burgan (2005) models and represents distinct distributions of fuel loading found among surface fuel components (live and dead), size classes, and fuel types⁵.

Recommendations / Justification

Reduced/mitigated FMZs have been discussed and upon provisions for measures that provide the same practical effect, approved by the fire department. This Fire Protection Technical Report proposes the following approach and justification. The fire protection measures are evaluated to provide at least equivalent protection based on the experience of the preparers of this report.

1. Site fire environment and fire behavior is not significant. The vegetation on site and on adjacent lands is sparse – dried mustard and scattered sage. The ridge behind the project site slopes up and away from project, is covered with sparse light vegetation and rocks, which is beneficial.
2. Structures will be constructed in accordance with CRC R337 (Residential Code equivalent of CBC Chapter 7A) building codes (within FHSZ) and will include features such as ember resistant vents (baffled not just mesh).
3. FMZ will be provided around entire perimeter of the project site (see Fuel Modification Plan – Attachment 2). (Where the FMZ and Jurisdictional Delineation area overlaps along the upper portion of the southeastern property line, active fuel treatment will be conducted so as to avoid impacts. The channel is comprised of large boulders with limited vegetation and in its existing state acts as a fuel modification area.) The Project will be hardened throughout.
 - a. The Project shall attempt to obtain an interim off-site FMZ easement for Pads 7 and 13 so that a total of 100 feet of FMZ from the Project's structures can be achieved. The off-site FMZ would be limited to thinning/mowing of existing vegetation annually. Should the off-site easement be infeasible based on an unwilling neighbor, then alternative fire protection is proposed:
 - i. Wherever less than 100 feet of FMZ (on and off site combined) is achievable, a 6-foot tall, masonry wall will be constructed at the property line in lieu of the additional FMZ.

⁵ Scott, Joe H. and Robert E. Burgan. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p.

Wall Justification: When buildings are set back from slopes, and a wall is placed at the property line, flames and radiant heat are deflected vertically reducing the effects of heat on the structure. If a structure cannot be setback adequately, or where the slope is less than 30%, a noncombustible wall can help deflect the flames from the structure⁶. The duration of radiant heat impact on the exposed side of the house is also reduced. The structure setback is important to avoid heat and/or flame intersection with the structure.

Heat-deflecting landscape walls of masonry construction that are six feet in height will be incorporated at the edge of lots where FMZs are the most constrained (Pads 7 and 13). The landscape walls provide a vertical, non-combustible surface in the line of heat, fumes, and flame. Once these fire byproducts intersect the wall, they are deflected upward or, in the case where lighter fuels are encountered, they are quickly consumed, heat and flame are absorbed or deflected by the wall, and the fuels burn peaks out within a short (30 second – 2 minute) time frame⁷. Walls like these have been observed to deflect heat and airborne embers on numerous wildfires in San Diego, Orange, Los Angeles, Ventura, and Santa Barbara County.

Rancho Santa Fe Fire Protection District, Laguna Beach Fire Department, Orange County Fire Authority, Murrieta Fire Protection District, and others utilize these walls as alternative methods based on observed performance during wildfires. This has led to these agencies approving use of non-combustible landscape walls as mitigations for reduced fuel modification zones and reduced setbacks at top of slope. While fuel moistures vary slightly across these jurisdictions, Santa Ana wind events create similar fuel moistures across a broad geographical area due to intensive drying of fuels. Therefore, this mitigation is also justified within the MVFD. These walls are consistent with NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire – 2008 Edition, Section 5.1.3.3 and A.5.1.3.3 and International Urban Wildland Interface Code (ICC 2012). NFPA 1144, A.5.1.3.3 states: “Noncombustible walls and barriers are effective for deflecting radiant heat and windblown embers from structures.” These walls and barriers are usually constructed of noncombustible materials (concrete block, bricks, stone, stucco) or earth where 30 feet (9 meters) of defensible space is not available.

- ii. Those units on the west side of the Project that are unable to provide 100’ FMZ will be developed at a later date as Phase II after the adjacent development (Gateway Center) has removed the existing native vegetation as part of their grading phase.
4. Provide FMZ inspections annually. Inspections will be performed by RCFD or, at their preference, the Project would fund inspections by a 3rd party to their satisfaction. This measure will ensure that the FMZ is functioning as intended.
 5. Identify and mark fire lane and/or no parking areas as required.

⁶ National Fire Protection Association (NFPA) 2005: Protecting Life and Property from Wildfire. James C. Smalley, Editor.

⁷ Quarles and Beall. 2022. Proceedings of the California 2001 Wildfire Conference. Accessed at <https://fireecology.org>

6. Provide enlarged turns at both internal loop roadway turns.
7. Dual pane (both panes) tempered glass for openings on exposed sides of the structures on Pads 7 and 13.
8. Loop internal road system with two 36-foot wide, multi-lane, physically separated ingress/egress roadways.
9. Hardening at Project access point via pavement and landscaping.
10. Fire access points at the terminus of each driveway along the north side of Project for firefighting. Additionally, the area behind the northeast side of the project includes a 10-to-12-foot flat area that will be available to pedestrian firefighters via the provided accesses at the end of each driveway in that area.

Summary

The structures will be constructed following CRC R337 and CBC Chapter 7A requirements to ensure reduced ignition potential. In addition, hardening of the structures including enhanced vents and enhanced glazing requirements will be included on selected units as noted above and a noncombustible landscape wall will be placed to mitigate FMZ reductions.

The internal circulation provides the necessary access to all structures with fire department turnarounds required for any driveway greater than 150 feet. The minimum roadway width of 36 feet meets the requirements for buildings less than 30 feet in height. Hydrants will need to be installed within the project site.

The primary access off Morton Road has been enhanced to include two 36' wide physically separated roadways for ingress and egress to reduce traffic congestion during emergencies, by providing dedicated ingress and egress routes.

Figures 1-2

Attachment: Gateway Heights PUD - 2 of 3 (6434 : Gateway Heights Tract 38459)

Table 1. Fire Behavior Modeling Results

Fire Scenarios	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
Scenario 1: 15% slope, 40 mph NE wind				
Fuel Model Sh1 (scrub/mustard)	8.4	584	1.0	0.7
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Scenario 1 Fuel Mod: 10% slope, 40 mph NE wind				
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Scenario 2: 15% slope, 20 mph SW wind				
Fuel Model Sh1 (scrub/mustard)	8.5	589	1.0	0.7
Fuel Model Sh2 (scrub/mustard)	14.1	1,796	0.8	0.9
Scenario 2 Fuel Mod: 15% slope, 20 mph SW wind				
Fuel Model 8 (irrigated landscaping)	2.6	46	0.1	0.3

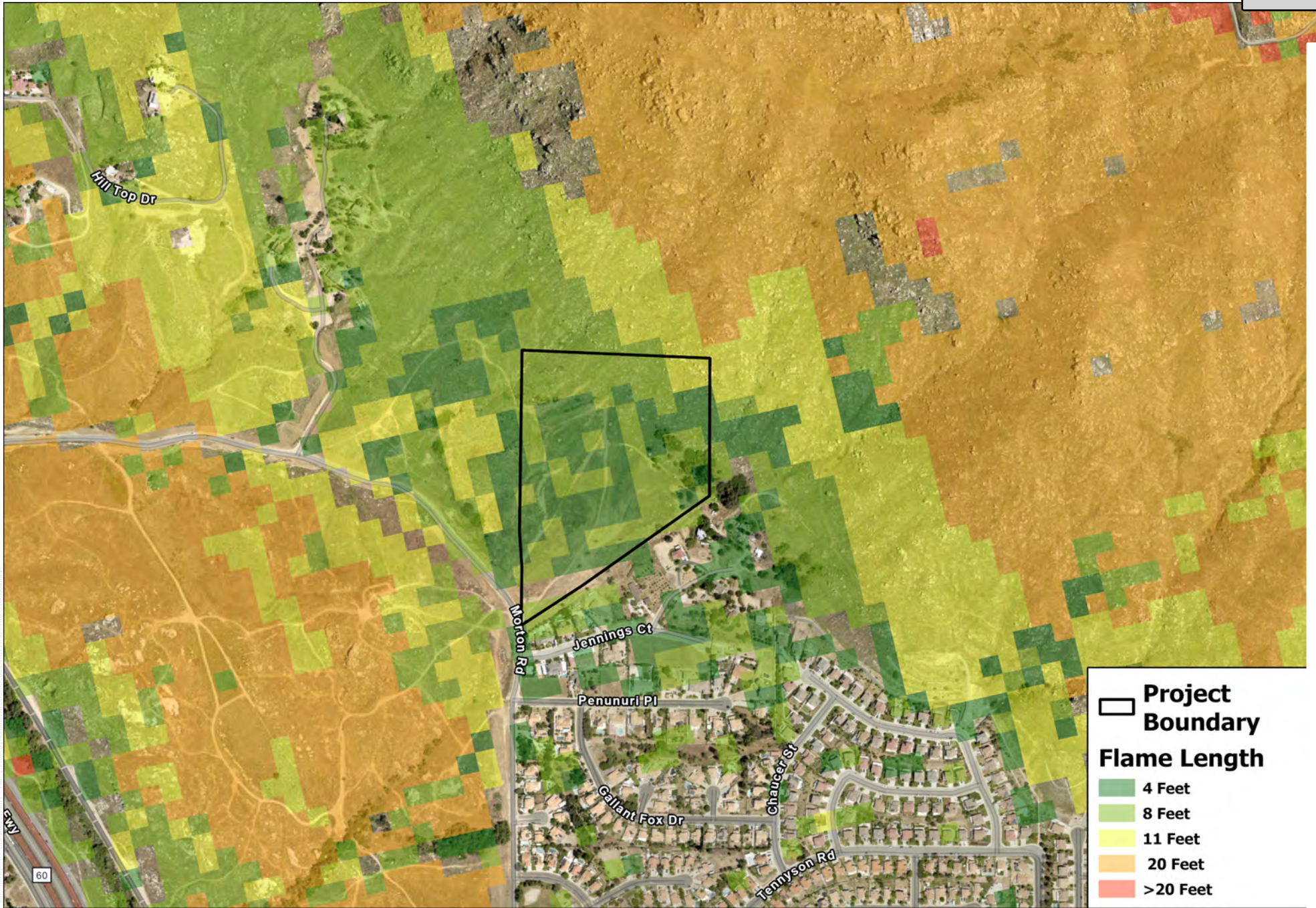


Attachment: Gateway Heights PUD - 3 of 3 (6434 : Gateway Heights Tract 38459)

SOURCE: AERIAL- BING MAPPING SERVICE; DEVELOPMENT- EDWIN SAMLIN 2021



FIGURE 1
BehavePlus Analysis Map
Fire Protection Plan for the Gateway Heights Project



Attachment: Gateway Heights PUD - 3 of 3 (6434 : Gateway Heights Tract 38459)

FIGURE 2
Flame Lengths
(Santa Ana Wind Event)

Attachment 1

Site Aerial Photograph

Attachment: Gateway Heights PUD - 3 of 3 (6434 : Gateway Heights Tract 38459)

Photo log

Gateway Heights – Moreno Valley

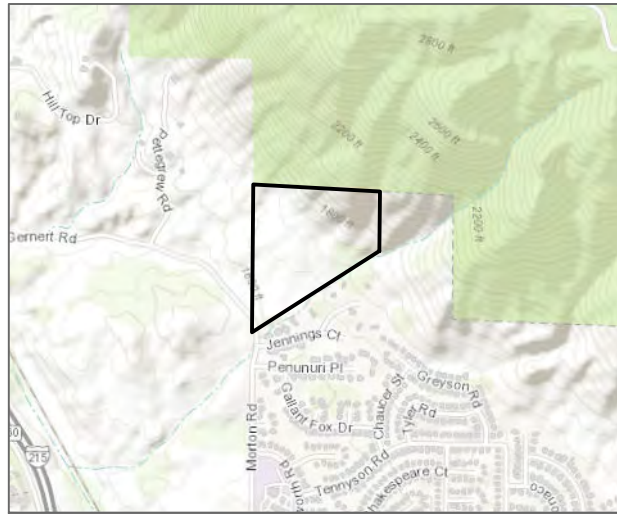
















Aerial view of Project site. Land cover on site is disturbed, grassland, with minimal shrubs. Slopes to the north/northeast are sparsely vegetated with heavy rock outcrop ground cover. East/southeast includes large property single family homes. Land to the west is vacant and planned for development. Morton Road is directly to the west/southwest.

Attachment 2

Fuel Modification Plan

Attachment: Gateway Heights PUD - 3 of 3 (6434 : Gateway Heights Tract 38459)



-  Project Boundary
-  30-Ft FMZ
-  100-Ft FMZ
-  FMZ Dimensions
-  6-Ft Masonry Wall
- Land Use**
-  Building Envelop
-  Development
-  Roadway
-  Driveway
-  Park
-  Slopes
-  Basin
-  Bench
-  Storm Drain System



SOURCE: AERIAL- RIVERSIDE COUNTY 2019



Attachment 3 Revised Site Plan Including Two Separate Ingress/Egress Roads

Attachment: Gateway Heights PUD - 3 of 3 (6434 : Gateway Heights Tract 38459)

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.
SITE PLAN (PEN21-0066)
 BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN
 UNITED ENGINEERING GROUP CA., INC DECEMBER 2022

LEGAL DESCRIPTION:

THAT PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY; THENCE RUNNING SOUTH ALONG THE WEST LINE OF SAID SECTION 34, 23.50 CHAINS TO THE CORNER MONUMENT MARKING THE NORTHWEST CORNER OF THE LAND CONVEYED TO CECIL R. G. WEBBE TO CHARLES M. DEXTER BY DEED RECORDED IN BOOK 141, PAGE 398, OF DEEDS, SAN BERNARDINO COUNTY RECORDS;
 THENCE NORTH 56 DEGREES 31' EAST ALONG THE LINE OF LAND SO CONVEYED TO CHARLES M. DEXTER, 23.91 CHAINS TO THE NORTHEAST CORNER OF SAID LAND SO CONVEYED TO CHARLES M. DEXTER;
 THENCE NORTH ALONG THE CENTER LINE OF THE NORTHWEST QUARTER OF SAID SECTION 34, 10.40 CHAINS TO THE NORTH LINE OF SAID SECTION 34; THENCE WEST ALONG THE NORTH LINE OF SAID SECTION, 20 CHAINS TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY INTEREST OF THE COUNTY OF RIVERSIDE IN AND TO THAT PORTION LYING WITHIN MORTON ROAD.

ALSO EXCEPTING THEREFROM THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING SOUTHWESTERLY OF SAID MORTON ROAD.

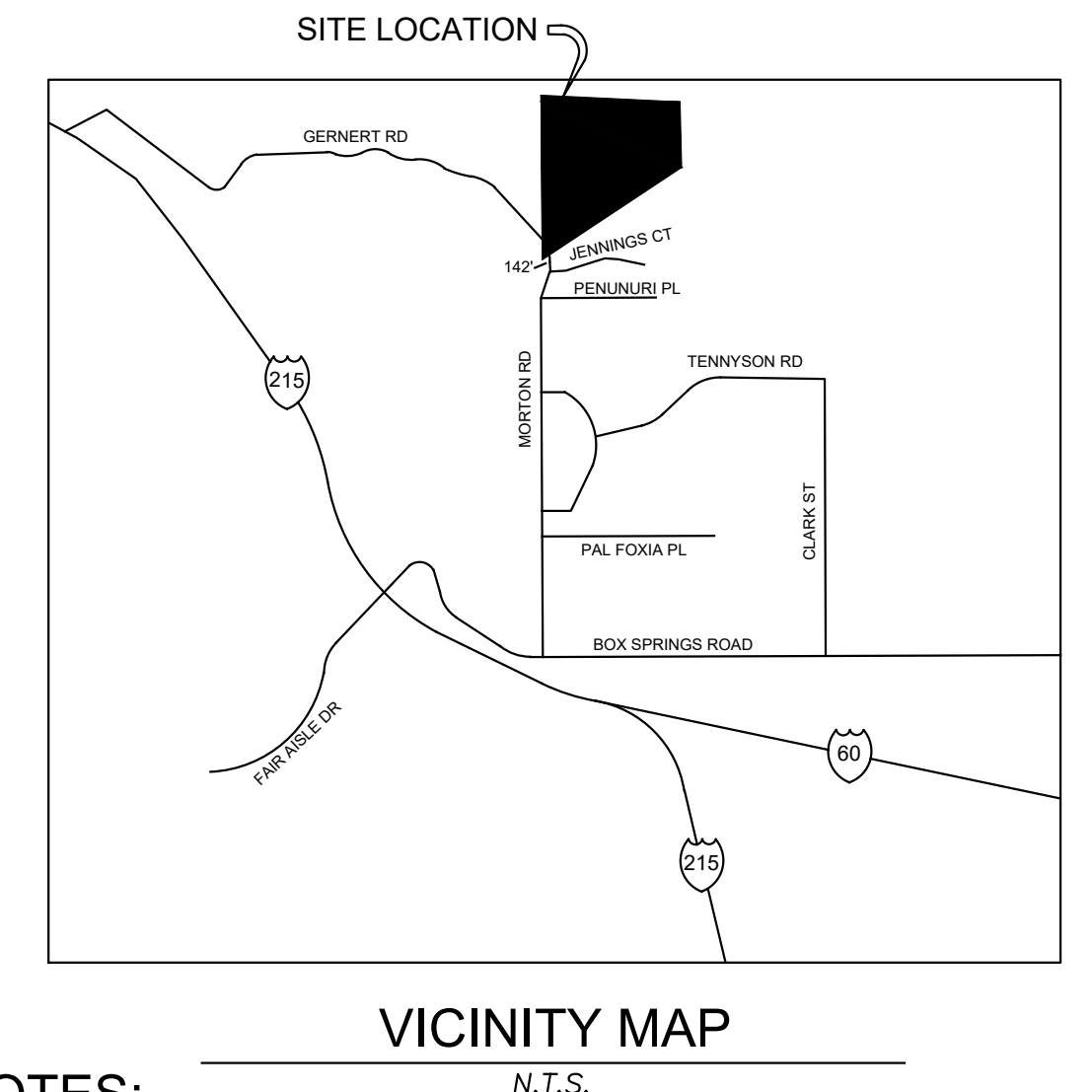
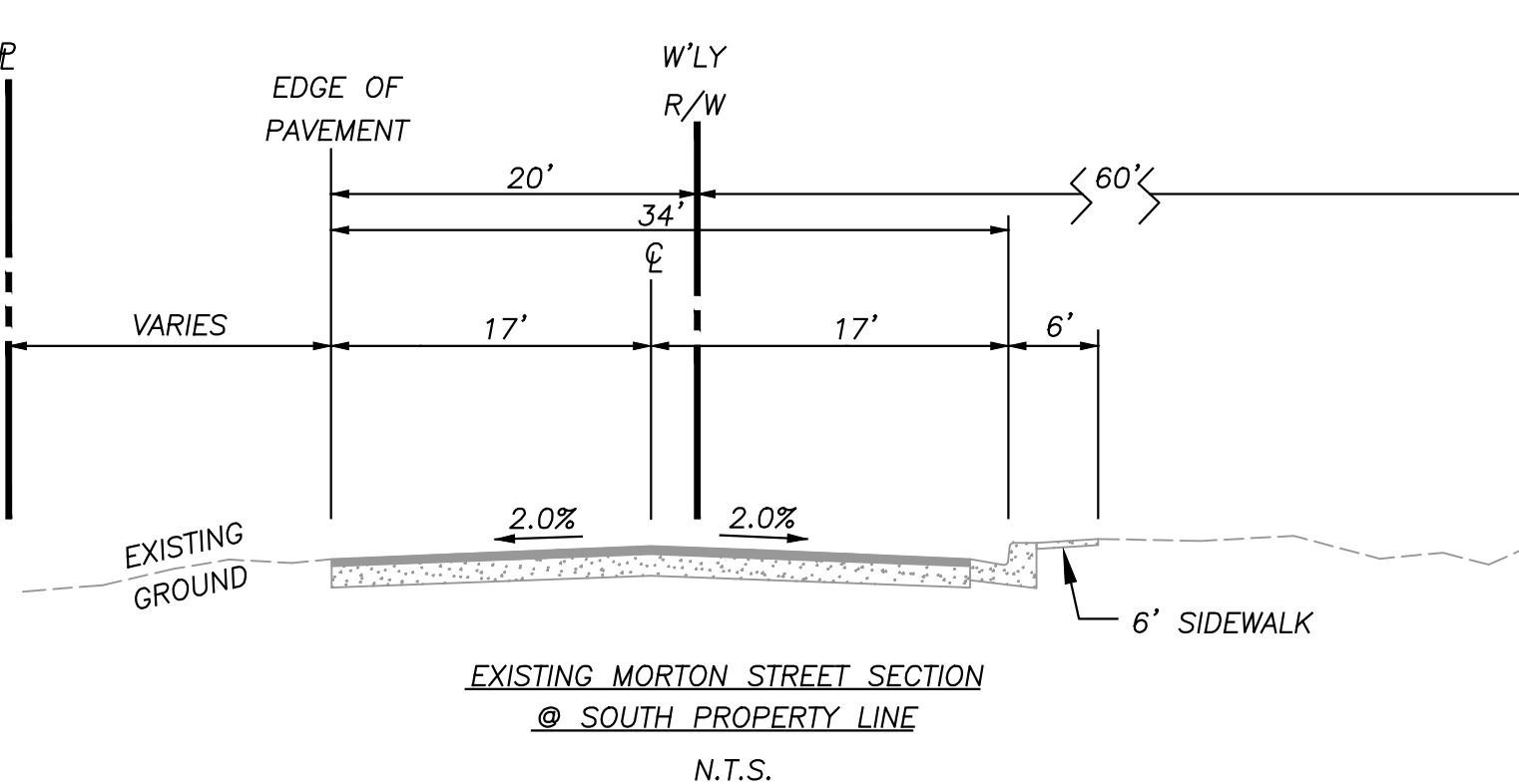
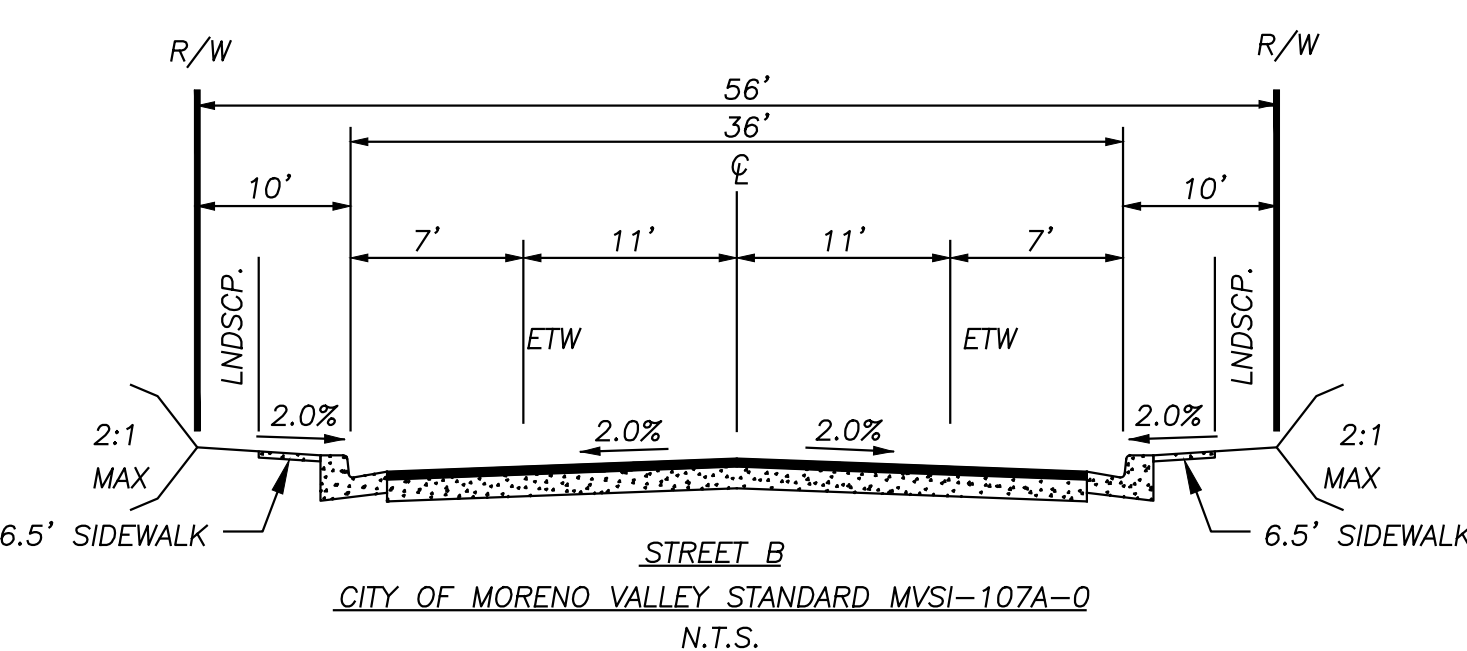
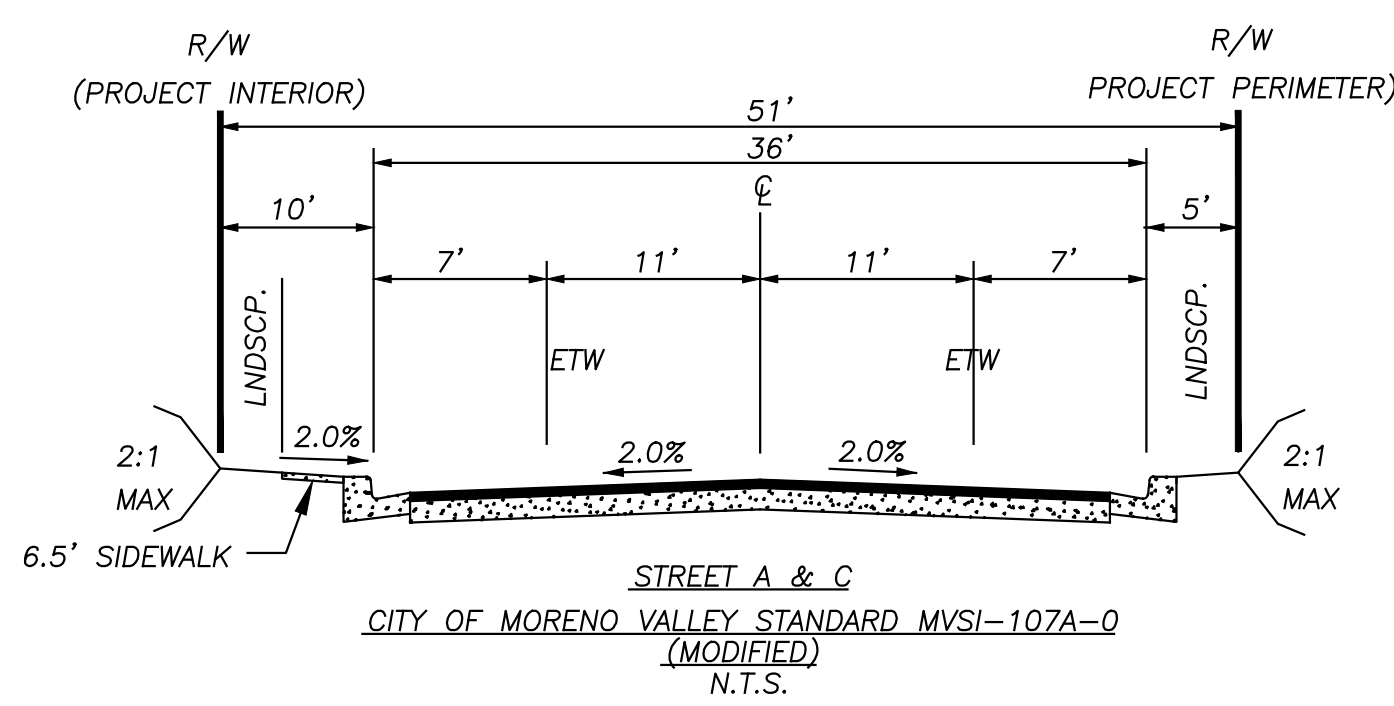
PARCEL NUMBER(S): 256-150-001

UTILITY PURVEYORS:

WATER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777	ELECTRIC	SOUTHERN CALIFORNIA EDISON 2492 W. SAN BERNARDINO AVE REDLANDS, CA. 92374 (800) 655-4555
SEWER	EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBULE ROAD PERRIS, CA. 92570 (951) 928-3777	GAS	SOUTHERN CALIFORNIA GAS 4495 HOWARD AVE RIVERSIDE, CA. 92507 (213) 244-8344
TELEPHONE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389	CABLE	SPECTRUM 12625 FREDERICK STREET SUITE F-10 MORENO VALLEY, CA 92553 (866) 874-2389
SCHOOL	MORENO VALLEY USD 25634 ALESSANDRO BLVD MORENO VALLEY, CA 92553 (951) 571-7500		

LEGEND

- FF FINISHED FLOOR
- FL FLOW LINE
- R/W RIGHT-OF-WAY
- BSL BUILDING SETBACK LINE
- FSL FIRE SEPARATION LINE
- S-S PROPOSED SEWER LINE
- W-W PROPOSED WATER LINE
- o- EXISTING SEWER LINE
- o- EXISTING WATER LINE
- o- DEVELOPMENT LIMITS
- - - PROJECT BOUNDARY CENTERLINE
- - - EXISTING DIRT ROAD
- PP POWER POLE
- OVERHEAD POWER LINE
- o- FUEL MODIFICATION ZONE
- o- DECORATIVE WALL
- o- GRADING DAYLIGHT LINE



GENERAL NOTES:

1. APN: 256-150-001
2. TOPOGRAPHY SOURCE: CALVADA SURVEYING, INC. COMPILED 4-2018. CONTOUR INTERVAL-1FT.
3. THE LAND DOES NOT LIE WITHIN AN ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE AS DEFINED BY THE STATE OF CALIFORNIA IN THE ALQUIST-PRIOLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP, PER GEOTECHNICAL STUDY DATED 9-22-2018 PREPARED BY LGC GEO-ENVIRONMENTAL, INC.
4. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 06071C5780H. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
5. THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
6. THIS AREA IS NOT WITHIN FAULT ZONE.
7. BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
8. PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
9. HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EASEMENTS, STREETS, PARK, OPEN SPACE AND FUEL MODIFICATION AREAS.
10. PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
11. ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
12. TO THE BEST OF OUR KNOWLEDGE, MORTON ROAD NORTHERLY OF JENNINGS COURT HAS NOT BEEN VACATED FROM THE CURVE ALIGNMENT THAT IS RECORDED ON PM27548.
13. PROJECT IS WITHIN THE HIGH FIRE AREA. ALL BUILDINGS ARE TO BE CONSTRUCTED TO BE IN ACCORDANCE WITH 2019 CBC, CHAPTER 7A, FOR HIGH FIRE.
14. REMOVE AND REPLACE WITH TRANSITIONS TO BE DETERMINED AT FINAL STREET PLANS BASED ON CORINGS AND GEOTECHNICAL RECOMMENDATION AND PER CITY ENGINEER.

SITE DATA

TOTAL GROSS AREA.....	32.56 ACRES
TOTAL NET AREA.....	32.56 ACRES
PROPOSED R10 ZONE.....	16.59 ACRES
PROPOSED OPEN SPACE ZONE.....	15.97 ACRES
DEVELOPMENT AREA.....	16.59 ACRES
UNITS 1 - 108.....	2,100 S.F./EACH (ALL 2 STORY)
PARKING SPACES REQ'D.....	216 (ENCLOSED GARAGE)
PROVIDED.....	216 (ENCLOSED GARAGE)

PARK AREA.....	0.89 ACRES
BASIN A.....	12,131.24 S.F.
BASIN B.....	13,852.37 S.F.
STREET A, B, & C.....	2,447.60 L.F.

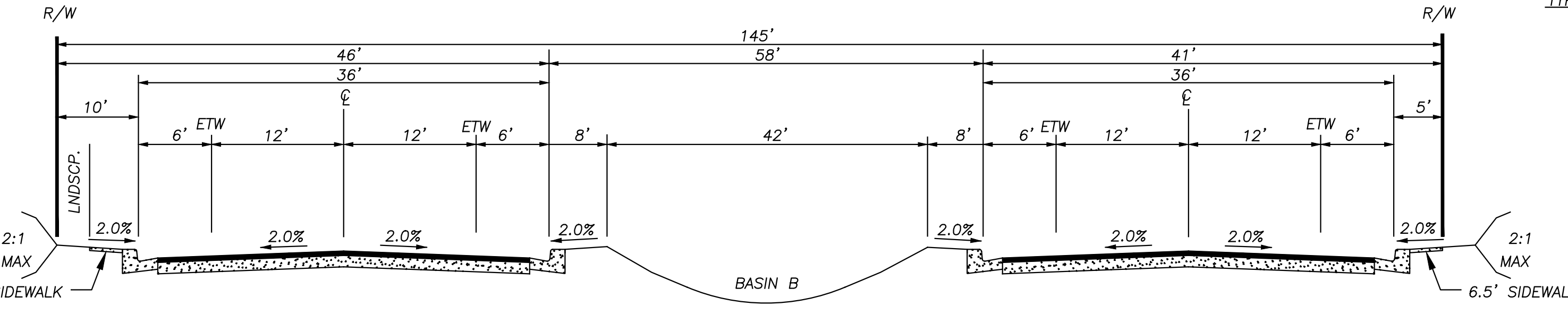
BUILDING SETBACKS	
FRONT/STREET SIDE.....	5' TO RIGHT OF WAY
MIN. BUILDING SEPARATION.....	6'
SIDE & REAR SETBACKS.....	5' MINIMUM TO TOP/TOE OF SLOPE (TOE OF SLOPE = H/2) (TOP OF SLOPE = H/3)

PROJECT LAND USE

EXISTING LAND USE.....	VACANT
PROPOSED LAND USE.....	RESIDENTIAL
EXISTING ZONING.....	R2 AND HR
PROPOSED ZONING.....	R10 AND OS

SURROUNDING LAND USE

NORTH:	HILLSIDE RESIDENTIAL (HR) & CONSERVATION (COUNTY OF RIVERSIDE)
SOUTH:	RESIDENTIAL MAX SDU/ACRE (RS)
EAST:	HILLSIDE RESIDENTIAL (HR)
WEST:	GATEWAY CENTER SPECIFIC PLAN (COUNTY OF RIVERSIDE)



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<p>united engineering group</p>	<p>8885 Haven Avenue Suite 195 Rancho Cucamonga, CA 91730 Phone: 909.466.9240 www.unitedeng.com</p>	<p>SITE PLAN</p> <p>GATEWAY HEIGHTS CONDITIONAL USE PERMIT PEN21-0066</p>	<p>DECEMBER 2022</p> <p>SHEET 1 OF 1</p> <p>PROJECT NUMBER CA-30182</p>
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Attachment 4 Site Photographs

Attachment: Gateway Heights PUD - 3 of 3 (6434 : Gateway Heights Tract 38459)

ATTACHMENT 4 - SITE PHOTOGRAPHS



Photograph 1: Photograph taken from Morton Road looking northeast at the project site showing on and off-site fuels and adjacent hillslopes that exists up and away from the project site. Rock outcroppings covering the hillslope reduce wildfire hazard by taking away burnable fuels.



Photograph 2: Photograph taken from the western edge of the project site looking east. On-site fuels are low load and comprised of short shrubs and annual grasses.

Attachment: Gateway Heights PUD - 3 of 3 (6434 : Gateway Heights Tract 38459)



Photograph 3: Photograph taken from the northern boundary of the project site looking west picturing adjacent shrub and grass fuels and electrical transmission line. Spacing between vegetation decreases wildfire spread.



Photograph 4: Photograph taken from northeastern boundary of project site showing shrub and grass fuels in addition to adjacent trees and rock outcroppings. Fuel loads are highest along the project site's northern boundary.

COUNTY OF RIVERSIDE CALIFORNIA FRIENDLY PLANT LIST

Botanical	Common	Wooded Region #	Sunset Zones	Measure Height (feet)	Measure Width (feet)	Fire Retardant / Slope	Local Mod. (per fire approval)	MOHCP adjacent
TREES								
Arbutus unedo	Strawberry Tree	L	8-24	8'-35'	8'-35'	✓	✓	✓
*Brahea edulis	Guadalupe Palm	L	12-24	30'	15'	✓	✓	✓
Ceratonia siliqua	St. John's Bread, Carob Tree	L	9, 13-16, 18-24	20'	20'	✓	✓	✓
Cercis occidentalis	Western Redbud	L	2-24	10'-18'	10'-18'	✓	✓	✓
Erythrina americana (E. coralloides)	Naked Coral Tree	L	12, 13, 19-24	30'	30'	✓	✓	✓
Erythrina x stylisii	Sykes Coral Tree	L	19-24	24'-30'	24'-30'	✓	✓	✓
Erythrina x bidwillii	Landon Plane Tree	L	8, 9, 12-24	24'-30'	24'-30'	✓	✓	✓
Ginkgo biloba	Maidenhair Tree	M	A3, 1-10, 12, 14, 24	35'-50'	15'-25'	✓	✓	✓
Gleditsia tricanthos	Honey Locust	L	1-16, 18-30	35'-70'	25'-35'	✓	✓	✓
Juglans californica	S. California Black Walnut	L	18-24	15'-30'	15'-30'	✓	✓	✓
Lagerstroemia indica	Crape Myrtle	M	7-10, 12-14, 18-21	25'	25'	✓	✓	✓
Liquidambar styraciflua (seedless var.)	Sweet Gum	M	3-9, 14-24	60'	20'-25'	✓	✓	✓
Lyonothamnus floribundus	Catalina Ironwood	L	14-17, 19-24	20'-35'	15'	✓	✓	✓
Melaleuca linearifolia	Flax Leaf Paper Bark	L	9, 13-24	20'-30'	20'-25'	✓	✓	✓
Melaleuca quinquenervia (M. vir. Rubrifolia)	Cajuput Tree	M	9, 12, 13, 15-17, 20-24	20'-40'	15'-25'	✓	✓	✓
Parkinsonia floribunda (Cercidium floridum)	Blue Palo Verde	L	8-14, 18-20	35'	30'	✓	✓	✓
Pistacia chinensis	Chinese Pistache	M	4-16, 17, 18-23	30'-60'	30'-60'	✓	✓	✓
Pittosporum phylloroides	Willow Pittosporum	L	8, 9, 12-24	12'-20'	10'-15'	✓	✓	✓
Platanus acerifolia	London Plane Tree	M	2-24	40'-80'	30'-40'	✓	✓	✓
Platanus racemosa	California Sycamore	M	4-24	30'-80'	20'-50'	✓	✓	✓
Populus fremontii	Fremont Cottonwood	M	1-12, 14-21	40'-60'	30'	✓	✓	✓
Prunus caroliniana	Carolina Laurel Cherry	M	5-24	20'-30'	15'-25'	✓	✓	✓
Prunus sicifolia	Hollyleaf Cherry	VL	5-9, 12-24	20'-25'	10'-25'	✓	✓	✓
Prunus sicifolia lyonii	Catalina Cherry	L	5-9, 12-24	45'	30'	✓	✓	✓
Quercus agrifolia	Coast Live Oak	L	7-9, 14-24	20'-70'	20'-70'	✓	✓	✓
Quercus chrysolepis	Canyon Live Oak	L	3-11, 14-24	20'-60'	20'-60'	✓	✓	✓
Quercus engelmannii	Mesa Oak	L	7-9, 14-24	40'-50'	80'-100'	✓	✓	✓
Quercus ilex	Holly Oak	L	4-24	30'-60'	30'-60'	✓	✓	✓
Quercus kelloggii	California Black Oak	M	6-7, 9, 14-21	30'-80'	30'-80'	✓	✓	✓
Quercus lobata	Valley Oak	M	3b-9, 11-24	70'	70'	✓	✓	✓
Quercus suber	Cork Oak	L	5-16, 18-24	30'-60'	30'-60'	✓	✓	✓
Quercus virginiana	Southern Live Oak	M	4-24	40'-80'	80'-100'	✓	✓	✓
Quercus wislizeni	Inferior Live Oak	VL	7-9, 14-16, 18-21	30'-75'	30'-75'	✓	✓	✓
Rhus lancea	African Sumac	VL	8, 9, 12-24	20'-30'	20'-35'	✓	✓	✓
SHRUBS								
Arctostaphylos densiflora	Sonoma Manzanita	L	7-9, 14-21	5'-6'	7'	✓	✓	✓
Arctostaphylos edmundsii	Little Sur Manzanita	L	6-9, 14-24	3'	12'	✓	✓	✓
Atriplex lentiformis	Quail Bush	VL	3, 7-14, 18, 19	3'-10'	6'-12'	✓	✓	✓
Atriplex lentiformis breweri	Brewer Saltbush	VL	8, 9, 12-24	5'-7'	6'-8'	✓	✓	✓
Baccharis emoryi	Emory's Baccharis	M	4-9, 16-24, 26	6'-9'	3'-6'	✓	✓	✓
Baccharis pilularis	Coyote Brush	L	5-11, 14-24	8'-24'	6'	✓	✓	✓
Baccharis salicifolia	Mulleaf	M	1-10, 16-24, 26	20'-30'	20'-35'	✓	✓	✓
*Bougainvillea spp.	Bougainvillea	L	5, 6, 12-17, 19, 21-23	3'-6'	3'-6'	✓	✓	✓
Calliandra californica	Baby Fairy Duster	L	10-24	5'	5'-6'	✓	✓	✓
Calliandra eriophylla	Fairy Duster	L	10-24	3'	4'-5'	✓	✓	✓
Carissa macrocarpa	Natal Plum	M	22-24, 32	5'-7'	5'-7'	✓	✓	✓
Carpenteria californica	Bush Anemone	M	5-9, 14-24, 31	6'-8'	4'-5'	✓	✓	✓
Ceanothus spp.	California Wild Lilac	L	5-9, 14-24	3'-15'	3'-15'	✓	✓	✓
Cistus spp.	Rockrose	L	6-9, 14-24	3'-6'	3'-6'	✓	✓	✓
Fremontodendron spp.	Flannel Bush	L	4-24	20'	12'	✓	✓	✓
Galvezia speciosa	Island Bush Snapdragon	L	14-24	3'	5'	✓	✓	✓
Garrya elliptica	Coast Silk Tassel	M	4-9, 14-24	10'-20'	10'-20'	✓	✓	✓
Hakea laurina	Sea Urchin Tree	L	9, 12-17, 19-24	10'-25'	9'-30'	✓	✓	✓
Hakea suavelens	Sweet Scented Hakea	L	9, 12-17, 19-24	10'-20'	10'-20'	✓	✓	✓
Heteromeles arbutifolia	Toyon	L	5-9, 14-24	6'-10'	6'-10'	✓	✓	✓
Lantana camara	Bush Lantana	L	8-10, 12-24	6'	6'	✓	✓	✓
Lantana montevidensis (gold cultivars)	Trailing Lantana	L	8-10, 12-24	2'	6'	✓	✓	✓
Larrea tridentata	Cresote Bush	L	7-14, 18-21	8'	8'	✓	✓	✓
Mahonia species	Oregon Grape	M	2-12, 14-24	5'-12'	5'-6'	✓	✓	✓
Malacothamnus fasciculatus	Mesa Bushmallow	L	7-24	4'-6'	4'-6'	✓	✓	✓
Melaleuca nesophila	Pink Melaleuca	L	13, 16-24	20'	20'	✓	✓	✓
Mimulus aurantiacus	Sticky Monkey Flower	L	7-9, 14-24	4 1/2'	4 1/2'	✓	✓	✓
Photinia serratifolia (P. serrulata)	Chinese Photinia	M	4-16, 18-22	30'	30'	✓	✓	✓
Photinia x fraseri	Fraser's Photinia	M	3b, 4-24	15'	15'	✓	✓	✓
Pittosporum tobira and hybrids	Tobira / Japanese Mock Orange	M	8-24	15'	15'	✓	✓	✓
Plumbago auriculata (campense)	Cape Plumbago	M	8, 9, 14-24	6'	10'	✓	✓	✓
Prunus caroliniana	Laurel Cherry	M	5-24	10'-25'	8'-25'	✓	✓	✓
Prunus sicifolia	Hollyleaf Cherry	VL	5-9, 12-24	10'-25'	10'-25'	✓	✓	✓
Punica granatum 'Nana'	Dwarf Pomegranate	M	5-24, 31	3'	6'	✓	✓	✓
Pyracantha species	Firethorn	M	4-24	4'-10'	4'-10'	✓	✓	✓
Rhamnus californica	Coffeeberry	L	3a-10, 14-24	15'	8'	✓	✓	✓
Rhaphiopholis indica	Indian Hawthorne	M	8-10, 12-24	5'	6'	✓	✓	✓
Rhus integrifolia	Lemonade Berry	L	8, 9, 14-17, 19-24	10'	10'	✓	✓	✓
Rhus laurina	Laurel Sumac	L	8, 9, 14-17, 19-25	15'	15'	✓	✓	✓
Rhus ovata	Sugar Bush	L	9-12, 14-24	10'	10'	✓	✓	✓
Rhus trilobata	Squawbush	L	1-12, 14-21	5'	5'	✓	✓	✓
Ribes aureum	Golden Currant	L	A2, A3, 1-12, 14-23	6'	6'	✓	✓	✓
Ribes indecorum	White Flowering Currant	L	7-9, 11, 14-24	9'	6'	✓	✓	✓
Ribes malvacum	Chaparral Currant	L	6-9, 14-24	5'	5'	✓	✓	✓
Ribes sanguineum	Red Flowering Currant	L	A3, 4-9, 14-24	12'	12'	✓	✓	✓
Ribes speciosum	Fuchsia Flowering Gooseberry	M	7-9, 14-24	8'	10'	✓	✓	✓
Ribes viburnifolium	Evergreen Currant	M	5, 7-9, 13-17, 19-24	3'-6'	12'	✓	✓	✓
Romneya coulteri	Matilija Poppy	L	4-12, 14-24	6'-8'	6'-8'	✓	✓	✓
Rosa californica	California Wild Rose	L	4-24	7'	3'	✓	✓	✓
*Salvia argentea	Silver Sage	L	1-24	10'	2'	✓	✓	✓
*Salvia clevelandii & hybrids	Salvia	L	8, 9, 12-24	5'	8'	✓	✓	✓
*Salvia greggii & hybrids	Autumn Sage	L	8-24	4'	4'	✓	✓	✓
*Salvia leucantha	Mexican Bush Sage	L	12-24	4'	6'	✓	✓	✓

*Salvia leucophylla	Purple Sage	L	8, 9, 14-17, 19-24	5'	5'	✓	✓	✓
Simmondsia chinensis	Joboba	VL	7-24	6'	6'	✓	✓	✓
Sphaeralcea ambigua	Desert Mallow	L	3, 7-24	4'	3'	✓	✓	✓
Teucrium fruticans	Bush Germander	L	4-24	8'	8'	✓	✓	✓
Xylosma congestum	Shiny Xylosma	M	8-24	10'	10'	✓	✓	✓
ACCENTS / GRASSES								
Agave species	Agave	L	10, 12-24 varies per species	1'-10'	1'-10'	✓	✓	✓
Aloe species	Aloe	L	8, 9, 12-24	1'-3'	1'-3'	✓	✓	✓
Arcispis subulata	Desert Milkweed	L	1-24	3'-6'	2'-3'	✓	✓	✓
Carpinus gigantea	Saguaro	L	12, 13, 18-21	50'	18'-8'	✓	✓	✓
Cephalocereus spp.	Old Man Cactus	L	13, 21-24	15'-45'	12'-5'	✓	✓	✓
Cereus peruvianus	Peruvian Apple Cactus	L	13, 16, 17, 21-24	10'	15'	✓	✓	✓
Dasylirotia species	Desert Spoon	L	10-24	5'	5'	✓	✓	✓
Echinocactus grusonii	Golden Barrel Cactus	L	12-24	4'	2 1/2'	✓	✓	✓
Ephedra viridis	Mormon Tea	L	1-3, 7-24	3'-4'	3'-4'	✓	✓	✓
Exposita lantana	Peruvian Old Man Cactus	L	12-24	8'	2'	✓	✓	✓
Euphorbia characias wulfenii	no common name	L	4-24	4'	4'	✓	✓	✓
Euphorbia ingens	Candelabra Tree	L	4-25	8'	4'	✓	✓	✓
Euphorbia millii	Crown of Thorns	L	13, 21-24	1'-4'	1 1/2'	✓	✓	✓
Euphorbia	Euphorbia	L	4-24	2'	3'-5'	✓	✓	✓
Euphorbia tirucalli	Pencil Tree (milk bush)	L	13, 23, 24	20'	6'	✓	✓	✓
Ferocactus spp.	Barrel Cactus	L	8-24	8'-9'	3'	✓	✓	✓
Fouquieria splendens	Ocotillo	L	10-13, 18-20	5'-10'	8'-25'	✓	✓	✓
Hesperaloe funifera	Coahuilan Hesperaloe	L	12, 13	6'	6'-8'	✓	✓	✓
Hesperaloe parviflora	Red / Yellow Yucca	L	2b, 3, 7-16, 18-24	3'-4'	3'-4'	✓	✓	✓
Kniphofia triangularis (K. galpinii)	Coral Poker	L	2-9, 14-24	2'	2'	✓	✓	✓
Kniphofia uvularia	Red Hot Poker	L	2-9, 14-24	2'	2'	✓	✓	✓
Muhlenbergia capillaris	Pink Muhly (Hairy awn muhly)	?	4-24	3'	6'	✓	✓	✓
Muhlenbergia emersleyi	Bull Grass	?	2-24	1 1/2'	3'-4'	✓	✓	✓
Muhlenbergia lindheimeri	Muhly Grass	M	4-24	4'-5'	4'-5'	✓	✓	✓
Muhlenbergia rigens	Deer Grass	M	4-24	4'	4'	✓	✓	✓
Nolina species	Grass Tree, Nolina	VL	varies per species	3'-25'	3'-12'	✓	✓	✓
Opuntia species	Prickly Pear, Cholla	L	varies per species	1'-15'	1'-15'	✓	✓	✓
Pachysetus marginatus	Mexican Fence	L	13, 16, 17, 21-24	25'	12'	✓	✓	✓
Penstemon parryi	Parry's Beardtongue	L	10-13	3'	2'	✓	✓	✓
Romneya coulteri	Matilija Poppy	L	4-12, 14-24	6'-8'	3'	✓	✓	✓
Sedum species	Various Sedum	L	8, 9, 12, 14-24 (per species)	2'-18'	6'-24'	✓	✓	✓
Stenocereus thurberi (Lemaireocereus)	Organpipe Cactus	L	12-24	15'-20'	12'	✓	✓	✓
Yucca species	Yucca, Joshua Tree	L	varies per species	3'-30'	5'-30'	✓	✓	✓
GROUND COVER								
*Acacia redolens 'Desert Carpet'	Trailing Acacia	L	13, 18, 19, 23	24"	15"	✓	✓	✓
Achillea tomentosa	Yarrow Woolly	L	A1-A3, 1-24	6"	18"	✓	✓	✓
Aptenia 'Red apple'	Red Apple	L	12, 13, 15-17, 21-24	6"	2"	✓	✓	✓
Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	L	6-9, 14-24	8"-14"	8"-14"	✓	✓	✓
Arctostaphylos hookeri	Monterey Manzanita	L	6-9, 14-24	4'	6'	✓	✓	✓
Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	L	7-9, 14-24	2 1/2'	10'	✓	✓	✓
Artemisia arbuscula 'Powis Castle'	Powis Castle Artemisia	L	7-9, 14-24	3'	6'	✓	✓	✓
Artemisia douglasiana	Mugwort	L	7-9, 14-24	2'	2'	✓	✓	✓
Artemisia pycnantha	Sandhill Sage	L	4, 5, 7-9, 14-17, 19-24	2'	3'	✓	✓	✓
Atriplex semibaccata	Creeping Salt Bush</							



Sample Plant Palette

TREES	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	USE	WUCOLS	STYLE	CA NATIVE
	<i>Arbutus unedo</i>	Strawberry Tree	15 gal	Evergreen	Accent Tree	Low	Standard	No
	<i>Cercis occidentalis</i>	Western Redbud Multi-trunk	15 gal	Deciduous	Accent Tree	Low	Standard	Yes
	<i>Lagerstroemia indica x fauriei</i> 'Natchez'	Natchez Crape Myrtle	15 gal	Deciduous	Accent Tree	Medium	Standard	No
	<i>Quercus agrifolia</i>	Coast Live Oak	15 gal	Evergreen	Screen Tree	Low	Standard	Yes
	<i>Quercus wislizeni</i>	Interior Live Oak	15 gal	Evergreen	Accent Tree	Low	Standard	Yes
	<i>Rhus lancea</i>	African Sumac	15 gal	Evergreen	Screen Tree			

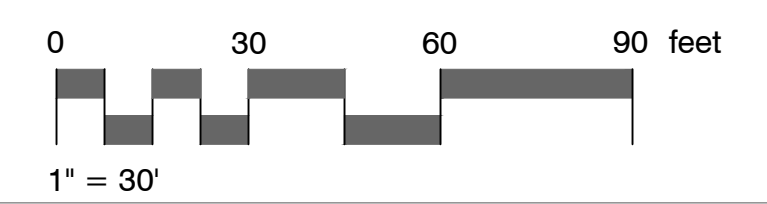
Sample Plant Palette

SHRUBS	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	WUCOLS	CA NATIVE
	Agave species	Agave	5 gal	Evergreen	Low	No
	<i>Ceanothus</i> spp.	Ceanothus several species	5 gal	Evergreen	Low	Yes
	<i>Cistus x pulverulentus</i> 'Sunset'	Sunset Rockrose	5 gal	Evergreen	Low	No
	<i>Dasyliion wheeleri</i>	Grey Desert Spoon	5 gal	Evergreen	Low	No
	<i>Hesperaloe parviflora</i>	Red Yucca	5 gal	Evergreen	Low	No
	<i>Heteromeles arbutifolia</i>	Toyon	5 gal	Evergreen	Low	Yes
	<i>Kniphofia uvaria</i> 'Shining Sceptre'	Shining Sceptre Red Hot Poker	5 gal	Evergreen	Low	No
	<i>Mimulus aurantiacus</i>	Sticky Monkeyflower	5 gal	Evergreen	Low	Yes
	<i>Penstemon parryi</i>	Parry's Beardtongue	1 gal	Evergreen	Low	No
	<i>Rhamnus californica</i>	California Coffeeberry	5 gal	Evergreen	Low	Yes
	<i>Salvia clevelandii</i>	Cleveland Sage	5 gal	Evergreen	Low	Yes
	<i>Salvia greggii</i>	Autumn Sage	5 gal	Evergreen	Low	Yes
	<i>Salvia leucantha</i>	Mexican Bush Sage	5 gal	Evergreen	Low	No
	<i>Salvia leucophylla</i>	Purple Sage	5 gal	Evergreen	Low	Yes
GROUND COVERS	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	WUCOLS	CA NATIVE
	<i>Acacia redolens</i> 'Desert Carpet'	Desert Carpet Bank Catclaw	5 gal	Evergreen	Low	No
	<i>Baccharis pilularis</i> 'Pigeon Point'	Pigeon Point Coyote Brush	5 gal	Evergreen	Low	Yes
	<i>Ceanothus griseus horizontalis</i>	Carmel Creeper	5 gal	Evergreen	Low	Yes
	<i>Myoporum parvifolium</i>	Trailing Myoporum	5 gal	Evergreen	Low	No
	<i>Rosmarinus officinalis</i> 'Prostratus'	Prostrate Rosemary	5 gal	Evergreen	Low	No
	<i>Zauschneria californica</i>	California Fuchsia	5 gal	Evergreen	Low	Yes

NOTE: Fuel modification shall be HOA maintained.

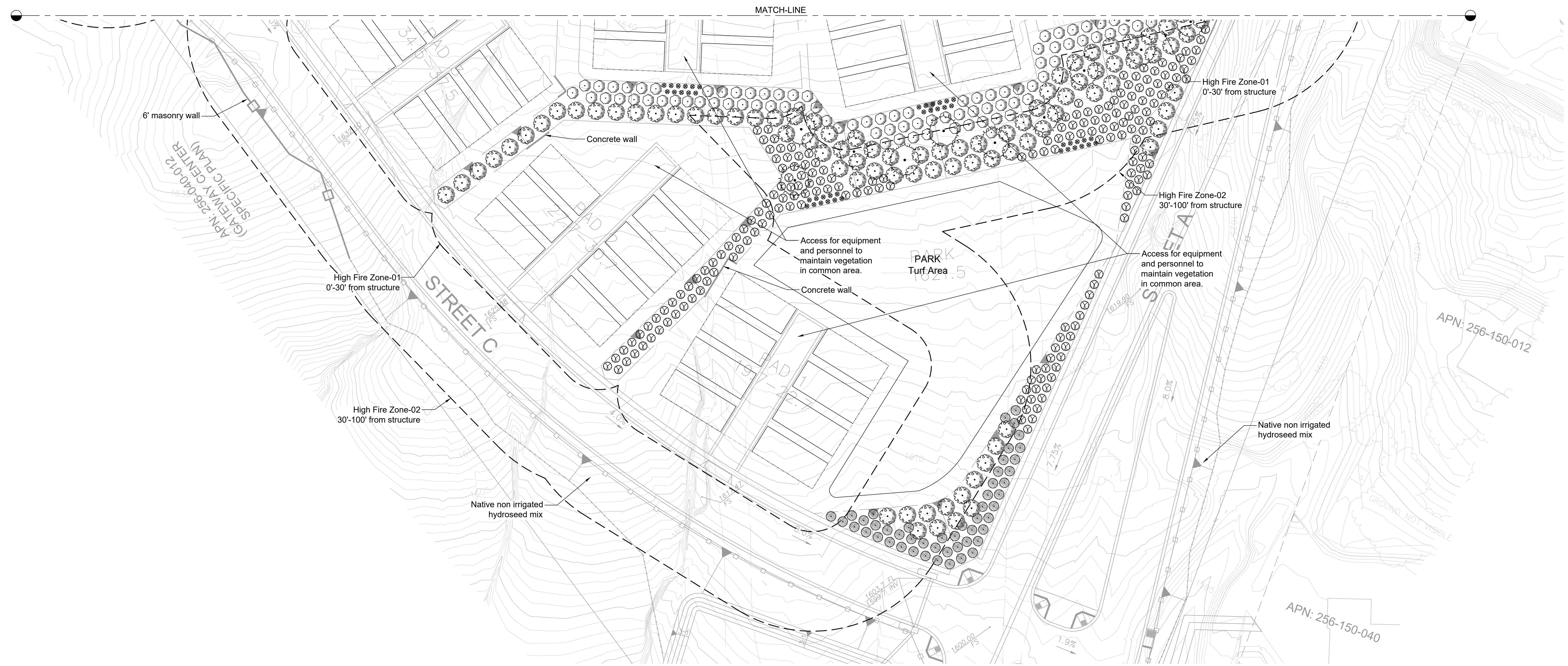
NOTE: All plants shown on this plan are either ground covers or trees.

NOTE: This information is conceptual in nature and is subject to adjustments pending further verification and Client and Governmental Agency approval. No warranties or guarantees are given or implied by the Architect.



PRELIMINARY FIRE PROTECTION PLAN
GATEWAY HEIGHTS
 MORENO VALLEY, CA

WOOD ARCHITECTURE
 Project: 22070_WA
 Date: 01.31.2023
 Scale: 1" = 30'
www.iwoodarchitecture.com



Sample Plant Palette

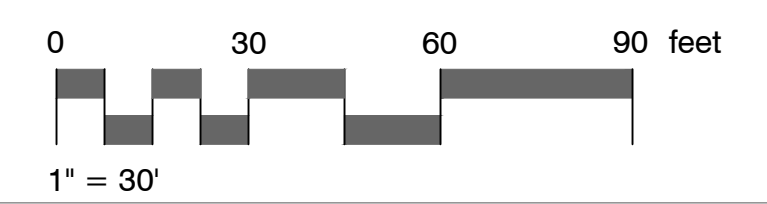
TREES	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	USE	WUCOLS	STYLE	CA NATIVE
	Arbutus unedo	Strawberry Tree	15 gal	Evergreen	Accent Tree	Low	Standard	No
	Cercis occidentalis	Western Redbud Multi-trunk	15 gal	Deciduous	Accent Tree	Low	Standard	Yes
	Lagerstroemia indica x fauriei 'Natchez'	Natchez Crape Myrtle	15 gal	Deciduous	Accent Tree	Medium	Standard	No
	Quercus agrifolia	Coast Live Oak	15 gal	Evergreen	Screen Tree	Low	Standard	Yes
	Quercus wislizeni	Interior Live Oak	15 gal	Evergreen	Accent Tree	Low	Standard	Yes
	Rhus lancea	African Sumac	15 gal	Evergreen	Screen Tree			

Sample Plant Palette

SHRUBS	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	WUCOLS	CA NATIVE
	Agave species	Agave	5 gal	Evergreen	Low	No
	Ceanothus spp.	Ceanothus several species	5 gal	Evergreen	Low	Yes
	Cistus x pulverulentus 'Sunset'	Sunset Rockrose	5 gal	Evergreen	Low	No
	Dasyliion wheeleri	Grey Desert Spoon	5 gal	Evergreen	Low	No
	Hesperaloe parviflora	Red Yucca	5 gal	Evergreen	Low	No
	Heteromeles arbutifolia	Toyon	5 gal	Evergreen	Low	Yes
	Kniphofia uvaria 'Shining Sceptre'	Shining Sceptre Red Hot Poker	5 gal	Evergreen	Low	No
	Mimulus aurantiacus	Sticky Monkeyflower	5 gal	Evergreen	Low	Yes
	Penstemon parryi	Parry's Beardtongue	1 gal	Evergreen	Low	No
	Rhamnus californica	California Coffeeberry	5 gal	Evergreen	Low	Yes
	Salvia clevelandii	Cleveland Sage	5 gal	Evergreen	Low	Yes
	Salvia greggii	Autumn Sage	5 gal	Evergreen	Low	Yes
	Salvia leucantha	Mexican Bush Sage	5 gal	Evergreen	Low	No
	Salvia leucophylla	Purple Sage	5 gal	Evergreen	Low	Yes
GROUND COVERS	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	WUCOLS	CA NATIVE
	Acacia redolens 'Desert Carpet'	Desert Carpet Bank Catclaw	5 gal	Evergreen	Low	No
	Baccharis pilularis 'Pigeon Point'	Pigeon Point Coyote Brush	5 gal	Evergreen	Low	Yes
	Ceanothus griseus horizontalis	Carmel Creeper	5 gal	Evergreen	Low	Yes
	Myoporum parvifolium	Trailing Myoporum	5 gal	Evergreen	Low	No
	Rosmarinus officinalis 'Prostratus'	Prostrate Rosemary	5 gal	Evergreen	Low	No
	Zauschneria californica	California Fuchsia	5 gal	Evergreen	Low	Yes

NOTE: All plants shown on this plan are either ground covers or trees.

NOTE: Fuel modification shall be HOA maintained.



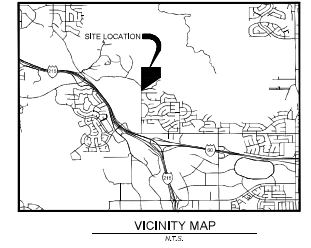
PRELIMINARY FIRE PROTECTION PLAN

GATEWAY HEIGHTS

MORENO VALLEY, CA

WOOD ARCHITECTURE
 Project: 22070_WA
 Date: 01.31.2023
 Scale: 1" = 30'
www.iwoodarchitecture.com

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA,
SITE PLAN
 BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN
 UNITED ENGINEERING GROUP CA., INC MARCH 2022



LEGAL DESCRIPTION:

THAT PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE ORIGINAL PLAT THEREOF, DESCRIBED AS FOLLOWS:
 BEGINNING AT THE NORTHWEST CORNER OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY; THENCE RUNNING SOUTH ALONG THE WEST LINE OF SAID SECTION 34, 23.60 CHAINS TO THE CORNER MONUMENT MARKING THE NORTHWEST CORNER OF THE LAND CONVEYED TO CECIL R. G. REBERE TO CHARLES M. DEUTER BY DEED RECORDED IN BOOK 141, PAGE 388, OF RECORDS, SAN BERNARDINO COUNTY RECORDS;
 THENCE NORTH 56 DEGREES 31' EAST ALONG THE LINE OF LAND SO CONVEYED TO CHARLES M. DEUTER, 23.91 CHAINS TO THE NORTHWEST CORNER OF SAID LAND SO CONVEYED TO CHARLES M. DEUTER;
 THENCE NORTH ALONG THE CENTER LINE OF THE NORTHWEST QUARTER OF SAID SECTION 34, 16.40 CHAINS TO THE NORTH LINE OF SAID SECTION 34; THENCE WEST ALONG THE NORTH LINE OF SAID SECTION 34 CHAINS TO THE TRUE POINT OF BEGINNING.

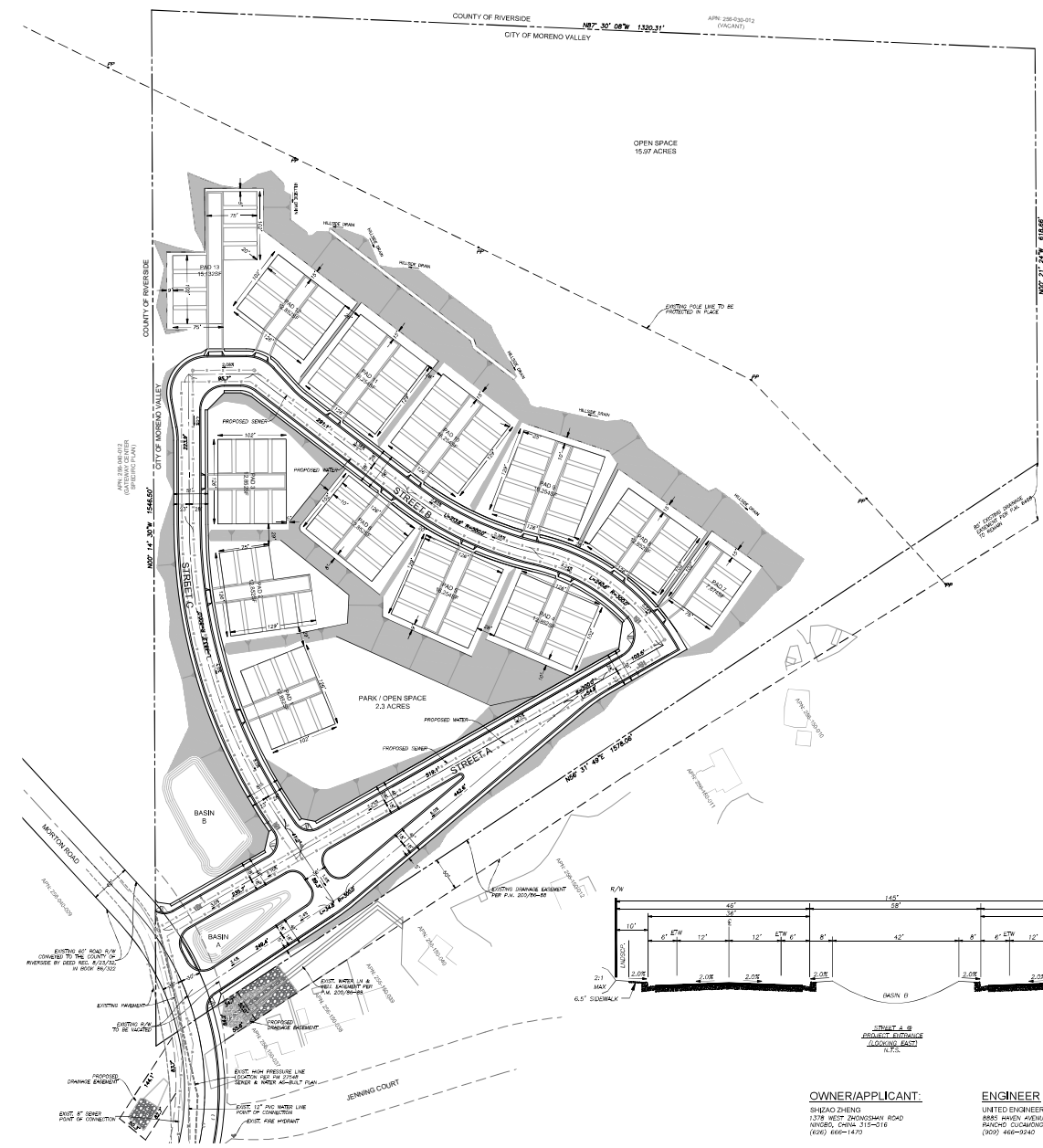
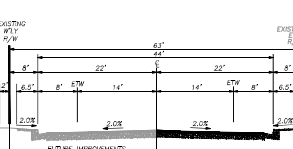
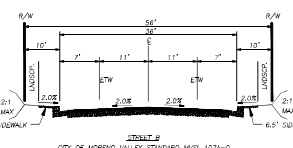
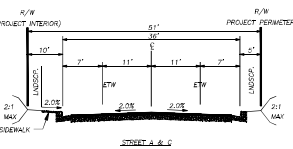
EXCEPTING THEREFROM ANY INTEREST OF THE COUNTY OF RIVERSIDE IN AND TO THAT PORTION LYING WITHIN WORTON ROAD.
 ALSO EXCEPTING THEREFROM THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING SOUTHWESTERLY OF SAID WORTON ROAD.
 PARCEL NUMBER(S): 256-102-001

UTILITY PURVEYORS:

- WATER:** EASTERN MUNICIPAL WATER DISTRICT
2532 TRAVELER ROAD
RIVERSIDE, CA 92570
(951) 928-3777
- SEWER:** EASTERN MUNICIPAL WATER DISTRICT
2532 TRAVELER ROAD
RIVERSIDE, CA 92570
(951) 928-3777
- ELECTRIC:** SOUTHERN CALIFORNIA Edison
2492 W. SAN BERNARDINO AVE
REDLANDS, CA 92374
(800) 655-4555
- GAS:** SOUTHERN CALIFORNIA GAS
4495 HOWARD AVE
RIVERSIDE, CA 92507
(715) 244-8544
- TELEPHONE:** SPECTRUM
15028 ARDENBROOK STREET
SUITE 1-10
MORENO VALLEY, CA 92553
(866) 874-2389
- CABLE:** SPECTRUM
15028 ARDENBROOK STREET
SUITE 1-10
MORENO VALLEY, CA 92553
(866) 874-2389

LEGEND

- FF FINISHED FLOOR
- FL FLOW LINE
- R/W RIGHT-OF-WAY
- S PROPOSED SEWER LINE
- W PROPOSED WATER LINE
- EW EXISTING WATER LINE
- EW EXISTING WATER LINE
- DEVELOPMENT LIMITS
- PROJECT BOUNDARY
- CENTRAL LINE
- EXISTING DIRT ROAD
- bp POWER POLE
- OVERHEAD POWER LINE
- FUEL MODIFICATION ZONE

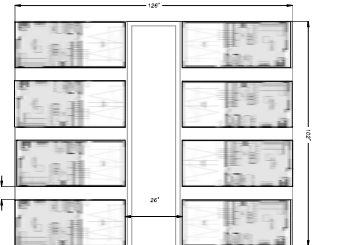


- GENERAL NOTES:**
- APN: 256-102-001
 - TOPOGRAHY SOURCE: CALVARIA SURVEYS, INC. COMPILED 4-2018.
 - CONTOUR INTERVAL: 1 FT.
 - THE LAND DOES NOT LIE WITHIN AN ALGOSIT-PROLO EARTHQUAKE FAULT HAZARD ZONE AS DETERMINED BY THE STATE OF CALIFORNIA IN THE ALGOSIT-PROLO EARTHQUAKE FAULT HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP. FEEL GEOTECHNICAL STUDY DATED 8-22-2018 PREPARED BY LOG GEO-ENVIRONMENTAL, INC.
 - THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 050715700N. THE SITE IS DESIGNATED AS OTHER FLOOD AREA-ZONE X.
 - THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
 - THIS AREA IS NOT WITHIN FAULT ZONE.
 - BOUNDARY INFORMATION DISPLAYED ON THIS PLAN HAS BEEN COMPILED FROM RECORD SURVEYING AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
 - PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
 - HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE EXTERMINES, STREETS AND FUEL MODIFICATION AREAS.
 - PROJECT WILL COMPLY WITH WATER QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
 - ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
 - TO THE BEST OF OUR KNOWLEDGE, WORTON ROAD NORTHEASTLY OF JENNING COURT IS NOT BEING VACATED FROM THE DRIVE ALLOTMENT THAT IS RECORDED ON PLAT 548.

SITE DATA

TOTAL GROSS AREA	32.56 ACRES
TOTAL NET AREA	32.56 ACRES
PROPOSED SITE	16.53 ACRES
DEVELOPMENT AREA	16.53 ACRES
UNITS 1 - 10M	2,100 S.F./2,000 S.F. (ALL 2 STORY)
PARKING SPACES REQUIRED	216 (ENCLOSED GARAGE)
PARKING SPACES PROVIDED	216 (ENCLOSED GARAGE)
PARK AREA	2.83 ACRES
BASEIN A	15,125.00 S.F.
BASEIN B	13,452.37 S.F.
STREET A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z	2,447.60 S.F.

- PROJECT LAND USE:** VACANT
 PROPOSED LAND USE: RESIDENTIAL
EXISTING ZONING: R2 AND R3
 PROPOSED ZONING: R21E AND OS
- SURROUNDING LAND USE:**
 NORTH: HILLSIDE RESIDENTIAL (R2)
 IN CONSERVATION (COUNTY OF RIVERSIDE)
 SOUTH: RESIDENTIAL MAX SDU/AZ (R3)
 EAST: HILLSIDE RESIDENTIAL (R2)
 WEST: GATEWAY CENTER SPECIFIC PLAN (COUNTY OF RIVERSIDE)



SHEET INDEX:

SHEET 1	SITE PLAN
SHEET 2	CONCEPTUAL GRP

OWNER/APPLICANT:
 SHIHAO ZHENG
 1278 WEST TROWBERRY ROAD
 WINGRO, CHINA 315-016
 (866) 466-8240

ENGINEER:
 UNITED ENGINEERING GROUP CA, INC
 SUITE 105
 Rancho Cucamonga,
 CA 91730
 Phone: 909.466.8240
 www.unitedeng.com

SUBMITTALS:	NO.	REVISIONS	DATE
DESIGNED BY			
DRAWN BY			
CHECKED BY			

APPROVED FOR CONSTRUCTION	DATE: 3/10/22
APPROVED FOR RECORD	DATE: 3/10/22

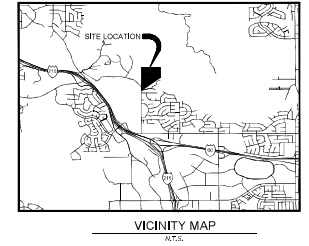
DEAN C. PHILIPS	DATE:
15, NO. 8914	
3148 W. 2nd St. #405	



SITE PLAN		DATE: MARCH
GATEWAY HEIGHTS CONDITIONAL USE PERMIT		SHEET 1 OF 2
		PROJECT NUMBER

Attachment: Project Plans (6434 : Gateway Heights Tract 38459)

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA,
CONCEPTUAL GRADING PLAN
 BEING A PORTION OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN
 UNITED ENGINEERING GROUP CA., INC MARCH 2022



GENERAL NOTES:

1. APR. 2006-100-001
2. TOPOGRAPHY SOURCE: CALIFORNIA SURVEYING, INC. COMPILED 4-2018.
3. THE LAND DOES NOT LIE WITHIN AN ADOPTED-PROPOSED EARTHQUAKE FAULT HAZARD ZONE AS DETERMINED BY THE STATE OF CALIFORNIA IN THE ADOPTED-PROPOSED EARTHQUAKE HAZARD ZONE ACT OR A RIVERSIDE COUNTY FAULT HAZARD MAP, PER GEOTECHNICAL STUDY DATED 04-23-2018 PERFORMED BY LOG GEO-ENVIRONMENTAL, INC.
4. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP FOR THIS SITE IS NO. 060710200R. THE SITE IS DESIGNATED AS OTHER FLOOD HAZARD ZONE X.
5. THE LAND IS SUBJECT TO LOW LIQUEFACTION HAZARD.
6. THIS AREA IS NOT WITHIN FAULT ZONE.
7. BOUNDARY INFORMATION OBTAINED ON THIS PLAN HAS BEEN COMPILED FROM RECORD INFORMATION AND IS NOT TO BE USED AS A BOUNDARY SURVEY.
8. PROJECT IS NOT WITHIN A COMMUNITY SERVICES DISTRICT.
9. HOMEOWNERS ASSOCIATION TO MAINTAIN SLOPES, DRAINAGE BASINS, DRAINAGE BASINMENTS, STREETS AND FUEL MODIFICATION AREAS.
10. PROJECT WILL COMPLY WITH BEST QUALITY TREATMENT REQUIRED IN THE PROJECT SPECIFIC WATER QUALITY MANAGEMENT PLAN.
11. ALL GRADING WORK SHOWN ON THIS PLAN SHALL BE DONE IN COMPLIANCE WITH CHAPTER 33 OF THE UNIFORM BUILDING CODE AND LOCAL ORDINANCES.
12. PRIOR TO ANY GRADING WORK, A GRADING PERMIT SHALL BE OBTAINED FROM THE CITY OF MORENO VALLEY BUILDING DEPARTMENT.
13. ALL GRADING SHALL CONFORM TO THE RECOMMENDATIONS AND REQUIREMENTS OF THE PRELIMINARY SOILS REPORT DATED SEPTEMBER 22, 2018 BY LOG GEO-ENVIRONMENTAL, INC.
14. ALL SLOPES ARE 2:1 UNLESS OTHERWISE NOTED.
15. TO THE BEST OF OUR KNOWLEDGE, WORKING FROM ADOPTED-PROPOSED GENESIS COUNTY NOT BEEN LOCATED FROM THE CURVE ADJUSTMENT THAT IS RECORDED ON PG27548.

LEGEND

- RF FINISHED FLOOR
- FL FLOW LINE
- R/W RIGHT-OF-WAY
- S - S PROPOSED SEWER LINE
- W - W PROPOSED WATER LINE
- SE EXISTING SEWER LINE
- WE EXISTING WATER LINE
- DEVELOPMENT LIMITS
- PROJECT BOUNDARY
- CENTERLINE
- EXISTING DIRT ROAD
- TOP POWER POLE
- OVERHEAD POWER LINE
- FUEL MODIFICATION ZONE
- Y Y Y 2:1 SLOPE (UNLESS OTHERWISE NOTED)

ESTIMATED EARTHWORK QUANTITIES (RAW)

CUT: 90,148 CU. YDS. FILL: 58,011 CU. YDS.

NOTE: THE ABOVE QUANTITIES DO NOT REFLECT ANY CHANGING SUBSTRATA, OVER EXCAVATION, OR ANY SPECIAL CONDITIONS THAT MAY BE OBSERVED IN THE PRELIMINARY SOILS REPORT AND ARE FOR INFORMATIONAL PURPOSES ONLY. SINCE THE EXISTING DRAINAGE CONTROL, THE EXISTING METHOD OR MEANS USED BY THE CONTRACTOR DURING GRADING OPERATIONS, NOR CAN THE ENGINEER QUANTIFY THE EXISTING SOIL CONDITION OVER THE ENTIRE SITE, THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE FINAL EARTHWORK QUANTITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THEIR OWN EARTHWORK QUANTITIES FOR BIDDING, CONTRACT AND CONSTRUCTION PURPOSES.

OWNER/APPLICANT:

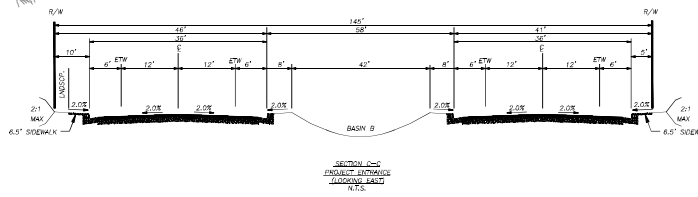
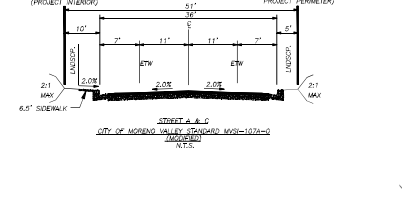
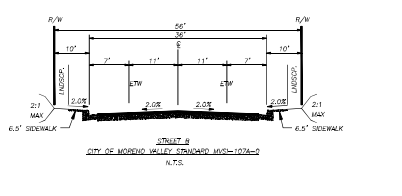
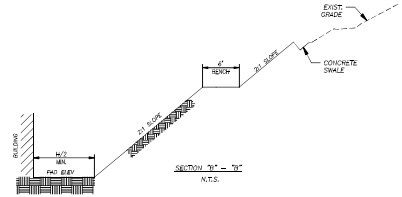
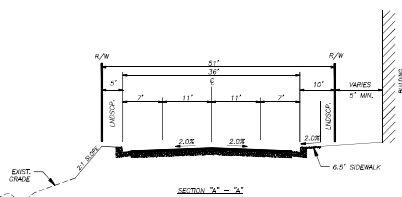
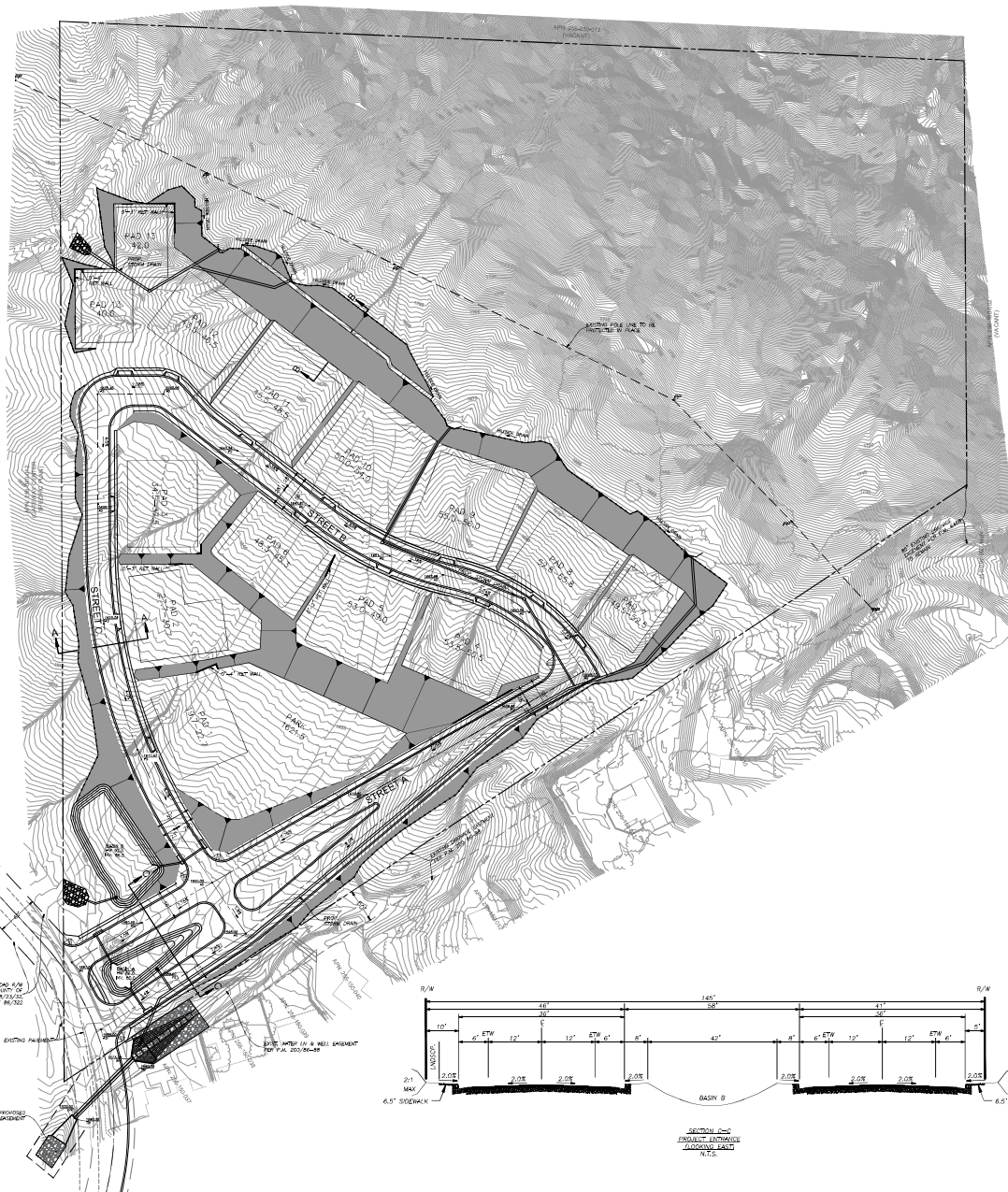
SHIHAD ZHENG
 1178 WEST PAVANESWAY ROAD
 MORENO, CALIF. 92553
 (924) 866-1470

ENGINEER

UNITED ENGINEERING GROUP CA, INC
 2005 HILLS AVENUE, SUITE 1700
 RANCHO CUCAMONGA, CA 91730
 (909) 466-9243

GEOTECHNICAL ENGINEER

LOG GEO-ENVIRONMENTAL, INC.
 27520 COMMERCE CENTER DRIVE
 SUITE 108
 TEMECULA, CA 92590
 (951) 297-0400



NO.	REVISIONS	DATE



CHRISTOPHER F. LEIZ DATE
 R.E.C. No. 6300



8886 Haven Avenue
 Suite 105
 Rancho Cucamonga,
 CA 91730
 Phone: 909.466.9240
 www.unitedeng.com

CONCEPTUAL GRADING PLAN	DATE
GATEWAY HEIGHTS CONDITIONAL USE PERMIT	SHEET 2 OF 2
PROJECT NUMBER	

Attachment: Project Plans (6434 : Gateway Heights Tract 38459)

LEGEND:

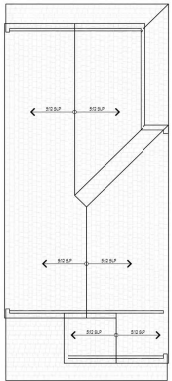
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- 2 STUCCO BODY
- 3 STUCCO FOAM BASE
- 4 STONE VENEER
- 5 STUCCO TRIM CAP
- 6 SHUTTERS
- 7 FASCIA
- 8 STUCCO DOOR & WINDOW TRIM
- 9 STUCCO CORNICE
- 10 BOARD & BATTION TRIM
- 11 DECORATIVE BRACKET
- 12 STUCCO TRIM
- 13 RAFTER TAILS
- 14 DECORATIVE VENT
- 15 STUCCO FOAM BILL
- 16 GARAGE DOOR
- 17 GARAGE SIDE DOOR
- 18 CORBEL



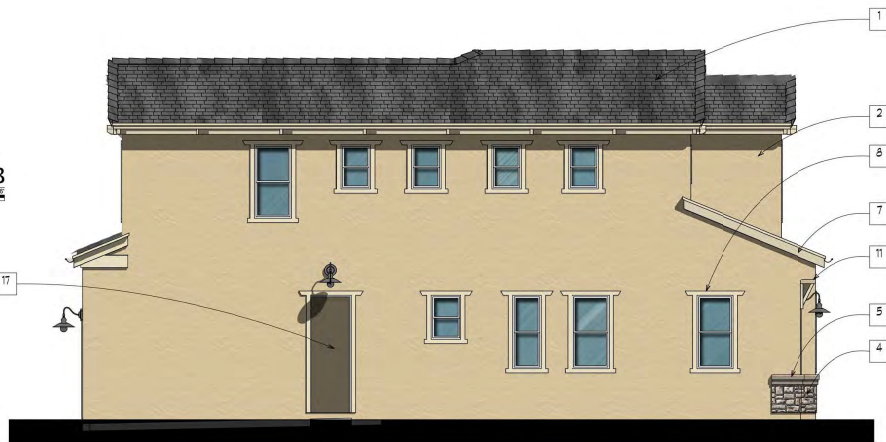
1 PLAN 1B RIGHT ELEVATION



1 PLAN 1B REAR ELEVATION



1 ROOF PLAN 1B



1 PLAN 1B LEFT ELEVATION



1 PLAN 1B FRONT ELEVATION

KPI
KNITTER PAF
INTERNATION,
architecture & j
17752 MITCHELL NOR
IRVINE, CALIFORNIA 9
549.752.1177 WA
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Henghou Group
177 E. Colorado BLVD, Ste. 200
Pasadena, CA 91105

Gateway Heights

Attachment: Project Plans (6434 : Gateway Heights Tract 38459)

PROJECT INFO

PROJECT NUMBER: 2019

PROJECT MANAGER: MK

DRAWN BY: SJW

SHEET ISSUE DATE: 10/22

SHEET TITLE

PLAN
EXTERIC
ELEVATION
MODERN FARM

SHEET NUMBER

A-1.0

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 PROHIBITED.

NO. DATE

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Henghou Group
 177 E. Colorado BLVD Ste. 200
 Pasadena, CA 91105

Gateway Heights
 177 E. Colorado BLVD Ste. 200
 Pasadena, CA 91105

Attachment: Project Plans (6434 : Gateway Heights Tract 38459)

PROJECT INFO

PROJECT NUMBER: 2019

PROJECT MANAGER: PLK

DRAWN BY: S/W

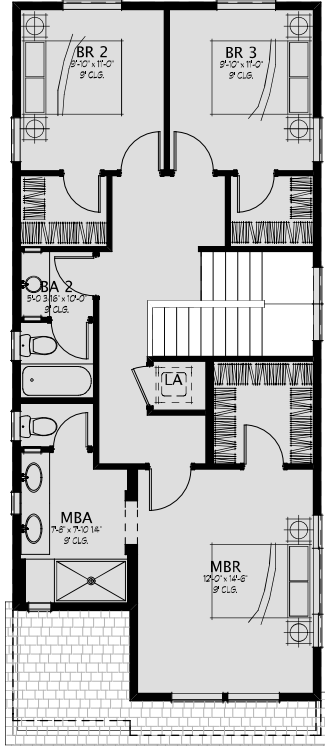
SHEET ISSUE DATE: 2/22

SHEET TITLE

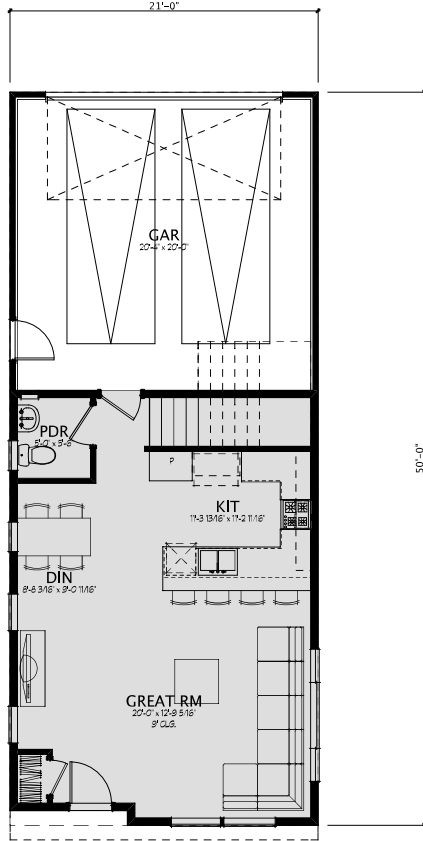
PLAN
 FLOOR PLAN

SHEET NUMBER

A-2.1



2 PLAN 2B SECOND FLOOR 885 sq ft



1 PLAN 2B FIRST FLOOR 615 sq ft
 TOTAL 1500 sq ft
 3 BEDROOM, 2.5 BATHS

LEGEND:

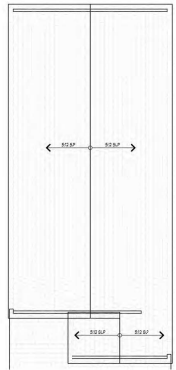
- 1 ROOF
- 2 STUCCO BODY
- 3 STUCCO FOAM BASE
- 4 STONE VENEER
- 5 STUCCO TRIM CAP
- 6 SHUTTERS
- 7 FASCIA
- 8 STUCCO DOOR & WINDOW TRIM
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- 13 RAFTER TAILS
- 14 DECORATIVE VENT
- 15 STUCCO FOAM BILL
- 16 GARAGE DOOR
- 17 GARAGE SIDE DOOR
- 18 CORBEL



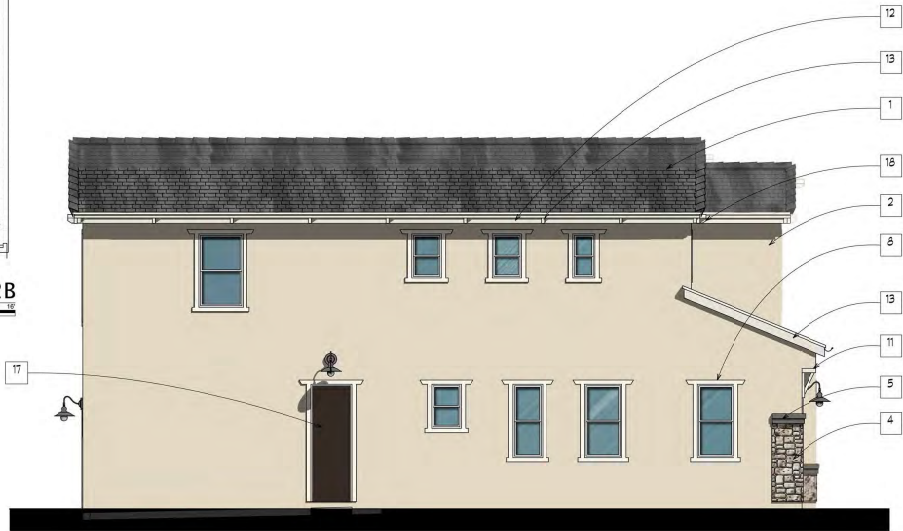
2 PLAN 2B RIGHT ELEVATION



2 PLAN 2B REAR ELEVATION



2 ROOF PLAN 2B



2 PLAN 2B LEFT ELEVATION



2 PLAN 2B FRONT ELEVATION

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KNITTER PAF
INTERNATIONAL,
architecture & j
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IRVINE, CALIFORNIA 9
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KNITTER PARTNERS INTERNATIONAL, INC.

NO.	DATE
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Henghou Group
177 E. Colorado BLVD Ste. 200
Pasadena, CA 91105

Gateway Heights
ARCHITECTURE, INC.

Attachment: Project Plans (6434 : Gateway Heights Tract 38459)

PROJECT INFO	
PROJECT NUMBER:	2019
PROJECT MANAGER:	MJK
DRAWN BY:	SJW
SHEET ISSUE DATE:	12/22

SHEET TITLE
**PLAN
EXTERIC
ELEVATION
MODERN FARM**

SHEET NUMBER
A-2.4

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NO. DATE
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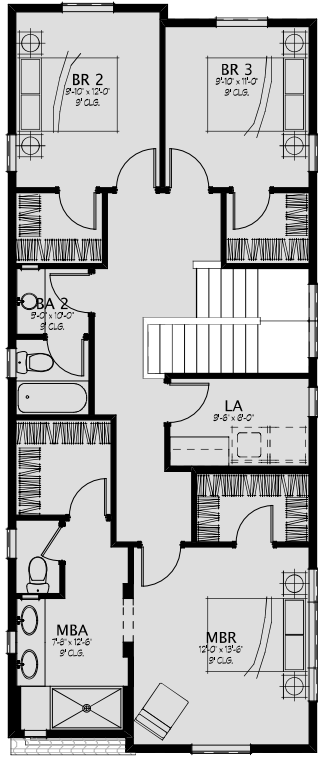
Henghou Group
 177 E. Colorado BLVD, Ste. 200
 Pasadena, CA 91105
Gateway Heights

PROJECT INFO
 PROJECT NUMBER: 2019
 PROJECT MANAGER: PLK
 DRAWN BY: S.W
 SHEET ISSUE DATE: 11/22

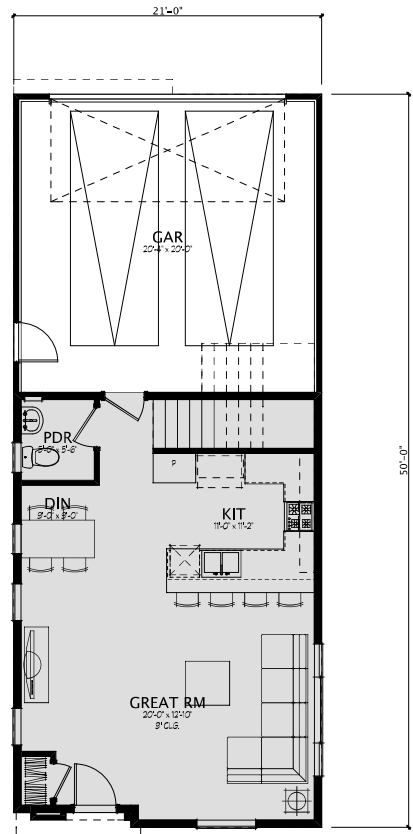
SHEET TITLE
PLAN
FLOOR PL

SHEET NUMBER
A-3.0

Attachment: Project Plans (6434 : Gateway Heights Tract 38459)



3 PLAN 3A SECOND FLOOR 987 sq ft



3 PLAN 3A FIRST FLOOR 615 sq ft
 TOTAL 1602 sq ft
 3 BEDROOM, 2.5 BATHS

1/24/2022, 2:14 PM, 1/22/2022 - Henghou Group - 17752 Mitchell Nor - Gateway Heights - 38459 - 17752 Mitchell Nor - Gateway Heights - 38459 - 17752 Mitchell Nor - Gateway Heights - 38459



Daylight Line

Park

Basin

Jennings Ct.

OPEN SPACE/PARK PLAN
GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA

NOT TO SCALE



united
 engineering
 group

Packet Pg. 2222

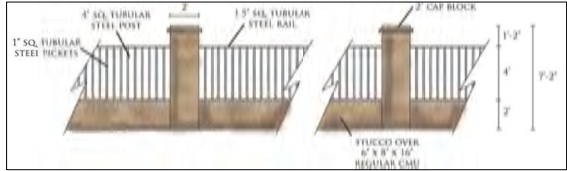
EXHIBIT J

Attachment: Project Plans (6434 : Gateway Heights Tract 38459)



CONCEPTUAL WALL / FENCE PLAN
GATEWAY HEIGHTS

MORENO VALLEY, CALIFORNIA



VIEW FENCE DETAIL



ENTRY FEATURE DETAIL

NOT TO SCALE



EXHIBIT M

Attachment: Project Plans (6434 : Gateway Heights Tract 38459)

Aerial Map



Legend

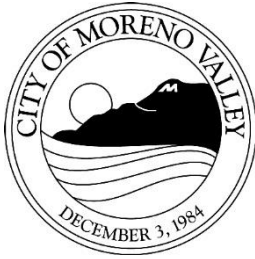
- Master Plan of Trails**
- Bridge
 - Improved
 - Multiuse
 - Proposed
 - Regional
 - State
- Road Labels**
- Parcels
 - City Boundary
 - Sphere of Influence

Image Source: Nearmap

Notes:

1,261.9 0 630.96 1,261.9 Feet

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.



PLANNING COMMISSION

STAFF REPORT

Meeting Date: June 8, 2023

GENERAL PLAN AMENDMENT, CHANGE OF ZONE, CONDITIONAL USE PERMIT FOR A PLANNED UNIT DEVELOPMENT, AND TENTATIVE TRACT MAP NO. 38459 FOR A 108-UNIT CONDOMINIUM DEVELOPMENT

Case No.: General Plan Amendment (PEN20-0095)
 Change of Zone (PEN20-0096)
 CUP for a Planned Unit Development (PEN21-0066)
 Tentative Tract Map No. 38459 (PEN22-0127)

Applicant: HengHou Group

Representative: Jason Ackerman

Property Owner: Shizao Zheng

Project Site: East side of Morton Road, approximately 300 feet north of Jennings Court. APN 256-150-001

Case Planner: Luis Lopez, Contract Planner

Council District: 2

Proposed Project: A General Plan Amendment, Change of Zone, Conditional Use Permit for a Planned Unit Development, and Tentative Tract Map No. 38459 for a 108-unit detached townhouse Planned Unit Development.

CEQA: Adopt Initial Study/Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program.

SUMMARY

The applicant, Shizao Zheng (HengHou Group), is requesting approval of a General Plan Amendment (GPA), Change of Zone (CZ), Conditional Use Permit for a Planned Unit Development (CUP), and Tentative Tract Map No. 38459 (TTM) to facilitate a 108

unit townhouse condominium project, on a 16.59-acre portion of 32.56-acre project site. The purpose of the Planned Unit Development (PUD) is to establish flexible standards to encourage innovation in housing types and provide amenities not generally found in suburban subdivisions, such as common open spaces and recreational areas. The General Plan Amendment (GPA), along with the Change of Zone (CZ), will allow for the change of the current land use designation from R2 Residential and Hillside Residential to R10 Residential and Parks/Open Space and the zoning designation from Residential 2 (R2) District and Hillside Residential (HR) District to Residential 10 (R10) District and Open Space (OS) District. The GPA, CZ, Conditional Use Permit (CUP), and Tentative Tract Map (TTM) together constitute the (“Proposed Project”).

PROJECT DESCRIPTION

General Plan Amendment

A General Plan Amendment (GPA) application was submitted to change the land use designation of the Project Site from R2 Residential and Hillside Residential to R10 Residential and Parks/Open Space. The R10 land use designation is intended to provide for a variety of residential products and to encourage innovation in housing types with amenities not generally found in suburban subdivisions, such as common open spaces and recreational areas. The primary purpose of areas designated Parks/Open Space is to provide areas that are substantially unimproved, including, but not limited to, areas for outdoor recreation and the preservation of natural resources. The proposed General Plan Designations allow for the Proposed Project to be constructed on a 16.59-acre portion of 32.56-acre Project Site, while retaining the remainder of the Project Site as Open Space.

Change of Zone

A Change of Zone (CZ) application was submitted to rezone the Project Site from Residential 2 (R2) District and Hillside Residential (HR) District to Residential 10 (R10) District and Open Space (OS) District. Under the Proposed Project’s current Residential (R2) District, a maximum of 2.0 units per gross acre is allowed. To obtain the desired number of units a change of zone is required to rezone the Project Site to Residential 10 (R10) District, which allows up to 10.0 units per gross acre.

Conditional Use Permit for Planned Unit Development

The applicant proposes a Conditional Use Permit for a Planned Unit Development (PUD) to allow for flexible standards to address the unique characteristics of the site. The PUD document (graphics and text) prepared for the Proposed Project will establish the land use regulations, development standards, and design guidelines for the tract, including the dedication of permanent open space.

The PUD document also provides guidelines for architectural themes for the townhomes, that meet or exceed City-wide design standards in the Municipal Code. All development within the tract must meet the standards stated in the PUD, including plotting, setbacks, open space areas, and architecture. Additionally, the PUD provides

design guidance for community entrances and perimeter fencing around the community and around the drainage areas.

Tentative Tract Map

Tentative Tract Map No. 38459 will subdivide the 32.56 gross acres of vacant and unimproved land into one 16.59-acre (common-area) lot for 108 condominium units, and one 15.97-acre “remainder” lot for public open space. The tentative map would also create the interior private loop streets, and dedicate the 0.89-acre park site. All on-site streets and drainage facilities will be maintained lots by a Homeowners Association (HOA).

Site/Surrounding Area

The 32.56-acre Project Site is a vacant and unimproved pie-shaped hillside lot located on the east side of Morton Road at the northwestern City Boundary. The Project Site slopes gradually upward away from Morton Road. To the north, properties are located within unincorporated Riverside County and are part of the Box Springs Mountain Reserve. Properties to the east are vacant and located within the Hillside Residential (HR) District. Properties to the east are also located within unincorporated Riverside County and are designated as “Gateway Center” Specific Plan. Properties to the South are located within the Residential 5 (R5) District and Hillside Residential (HR) District and are generally developed with single-family homes.

Access/Parking

The Proposed Project’s access will be provided by Morton Road with a private loop road serving the units. The Proposed Project has been designed to exceed the minimum parking requirements, providing a two-car garage for each unit, as well as 50 guest parking spaces along the private streets.

Design/Landscaping

The PUD guidelines for the proposed development will include two elevation styles: Santa Barbara and Modern Farmhouse. Each building style will have three color combinations to provide interest among the housing types.

The PUD includes typical configurations for the new homes and common area landscaping. The HOA will maintain all common area landscaping in an effort to maintain a consistent well-maintained appearance of the streetscapes within the community. The Proposed Project also includes a 0.89-acre park that will primarily serve the local neighborhood, including adjoining developed residential areas.

REVIEW PROCESS

As part of the standard review process, all appropriate outside agencies have considered the Proposed Project. The Proposed Project was reviewed by the Project Review Staff Committee as required by the Municipal Code. Following subsequent revisions and reviews by staff, the Proposed Project was determined to be complete.

ENVIRONMENTAL

An Initial Study was prepared by Psomas, in compliance with the California Environmental Quality Act (CEQA) and its guidelines. The Initial Study examined the potential impacts of the Proposed Project on the environment. The Initial Study/Mitigated Negative Declaration (IS/MND) serves as the appropriate CEQA documentation for the Proposed Project. With the implementation of the proposed mitigation measures, the Proposed Project will not have a significant effect on the environment. Technical studies prepared in support of the IS/MND include the following: Air Quality Calculations, Biological Resources Report, Jurisdictional Delineation, Rare Plant Survey Report, Burrowing Owl Survey Report, and Determination of Biologically Equivalent or Superior Preservation (DBESP) Report, Cultural Reports, Energy Calculations, Geotechnical Report, Slope Stability Report, EDR Radius Map Report, Preliminary Drainage Report, Project Specific Water Quality Management Report, Planned Unit Development, Traffic Impact Analysis, and Fire Hazard Analysis and Approach. Copies of the appendices to the IS/MND can be accessed from the link attached to this staff report. The documents can be reviewed at City Hall during operating hours.

Mitigation measures are recommended for the Proposed Project in the following areas: Aesthetics, Biological Resources, Cultural Resources, Energy, Geology and Soils, Hazards and Hazardous Materials, Public Resources, and Tribal Cultural Resources, all of which are incorporated into the Mitigation Monitoring and Report Program (MMRP). The measures for cultural resources have been included to address input from the Tribal governments. The measures are intended to ensure that potential resources that might be discovered are protected. However, these measures are not required to address a known significant impact. Based on the Initial Study and the proposed mitigation measures, the Proposed Project will not cause any significant impacts to the environment. In response to comments received from the California Department of Fish and Wildlife, mitigation measures have been slightly modified. These modifications do not result in a substantial change that would require recirculation of the environmental document.

The public comment period for the Notice of Availability of the Initial Study/Mitigated Negative Declaration began on March 2, 2023 and ended on March 31, 2023, (State Clearing House Number 2023020680) which satisfies the required 30-day review period required for this project.

NOTIFICATION

Consistent with the City Municipal Code provisions, public notice was sent to all property owners of record within 600 feet of the Project Site, posted on the Project Site, and published in the Press Enterprise Newspaper. As of the preparation of this staff report, no public comments have been received regarding the Proposed Project.

REVIEW AGENCY COMMENTS

Staff has coordinated with outside agencies where applicable, as is the standard review process for these development applications.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission take the following actions:

- A. That the Planning Commission **ADOPT** Resolution No. 2023-22, and thereby **RECOMMEND** the City Council:
 1. **ADOPT** the Initial Study/Mitigated Negative Declaration prepared for General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096), Conditional Use Permit for a Planned Unit Development (PEN21-0066), and Tentative Tract Map No. 38459 (PEN22-0127), on file with the Community Development Department, incorporated herein by this reference, which was completed in compliance with CEQA and the CEQA Guidelines, and reflects that the Planning Commission and City reviewed and considered the information contained in the Initial Study/Mitigated Negative Declaration, and exercised its independent judgment and analysis of the Proposed Project's potential environmental impacts; and
 2. **ADOPT** the Mitigation Monitoring and Reporting Program prepared for the Proposed Project, which consists of General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096), Conditional Use Permit for a Planned Unit Development (PEN21-0066), and Tentative Tract Map No. 38459 (PEN22-0127), pursuant to CEQA and its guidelines.
- B. That the Planning Commission **ADOPT** Resolution No. 2023-23, and thereby **RECOMMEND** the City Council:
 1. **APPROVE** General Plan Amendment (PEN20-0095) based on the Recitals, Evidence contained in the Administrative Records and Findings as set forth in Resolution No. 2023-23 and any necessary and corresponding amendment to the City's Zoning Atlas to reflect the proposed changes in the zoning classification and/or redistricting associated with the General Plan Amendment.
- C. That the Planning Commission **ADOPT** Resolution No. 2023-24, and thereby **RECOMMEND** the City Council:
 1. **APPROVE** Change of Zone (PEN20-0096) based on the Recitals, Evidence contained in the Administrative Records and Findings as set forth in Resolution No. 2023-24 and any necessary and corresponding amendment to the City's Zoning Atlas to reflect the proposed changes in the zoning classification and/or redistricting associated with the Change of Zone.
- D. That the Planning Commission **ADOPT** Resolution No. 2023-26, and thereby **RECOMMEND** the City Council:

1. **APPROVE** Conditional Use Permit for a Planned Unit Development (PEN21-0066), and Tentative Tract Map No. 38459 (PEN22-0127) based on the Recitals, Evidence contained in the Administrative Records and Findings as set forth in Resolution No. 2023-26.

Prepared by:
Luis Lopez
Contract Planner - Civic Solution

Approved by:
Sean P. Kelleher
Community Development Director

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

1. Resolution No. 2023-22 - Initial Study
2. Exhibit A to Resolution No 2023-22 - Initial Study
3. Exhibit B to Resolution No 2023-22 - Notice of Intent to Adopt a Mitigated Negative Declaration/Newspaper Notice
4. Exhibit C to Resolution No 2023-22 - Mitigation Monitoring and Reporting Program
5. Appendices A - G
6. Appendices H-L
7. Resolution No. 2023-23 - General Plan Amendment
8. Resolution No. 2023-24 - Change of Zone
9. Resolution No. 2023-26 CUP/TTM
10. Gateway Heights PUD - 1 of 3
11. Gateway Heights PUD - 2 of 3
12. Gateway Heights PUD - 3 of 3
13. Project Plans
14. Aerial Map
15. Public Comments

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Ray L. Baker, Commissioner
SECONDER:	JoAnn Stephan, Commissioner
AYES:	JoAnn Stephan, Alvin DeJohnette, Omar Cobian, Ray L. Baker

Attachment: Planning Commission Staff Report (6434 : Gateway Heights Tract 38459)



March 9, 2023

Luis Lopez, Contract Planner
 City of Moreno Valley
 14177 Frederick Street
 PO Box 88005
 Moreno Valley, CA 92552

Subject: EMWD Comments for the Gateway Heights Project Notice of Intent to Adopt a Mitigated Negative Declaration

Location: East side of Morton Road, approximately 300 feet north of Jennings Court in the City of Moreno Valley, Riverside County, California.

Dear Mr. Luis Lopez:

Eastern Municipal Water District (EMWD) thanks you for the opportunity to comment on the Notice of Intention to Adopt a Mitigated Negative Declaration for the Gateway Heights Project (project). The project proposes the construction of 108 detached townhouse condominium units, organized in 4-unit to 10-unit “clusters” on a total of 13 development pads. The project would be located on southwesterly 16.59 acres of the 32.56-acre project site. The 16.59 acres of the project site would be rezoned to Residential 10 District (R10) which allows maximum density of 10 dwelling units per net acre. The project would include a total of 3.1 acres of common open space, including trails and a 0.89-acre community park area at the center of the development. The remaining 15.97 acres of the project site would be rezoned to Open Space (OS) and dedicated as conservation land.

EMWD offers the following comments:

To define the impact(s) on the environment and on existing EMWD facilities, and as development within this area occurs over time, the proponents of implementing development projects shall consult EMWD’s Development Services Department to compare proposed and existing water demands and sewer flows, and prepare a Design Conditions report (DC), formally known as the Plan of Service (POS), to detail all

Board of Directors

Philip E. Paule, *President* Stephen J. Corona, *Vice President* Jeff Armstrong Randy A. Record David J. Slawson

2270 Trumble Road • P.O. Box 8300 • Perris, CA 92572-8300

T 951.928.3777 • F 951.928.6177 www.emwd.org

EMWD Comments

March 9, 2023

Page 2

pertinent facilities necessary to serve such implementing development projects, resulting in an approved DC, prior to final design and plan check of such facilities.

To help define EMWD's Design Conditions, EMWD requires beginning dialogue with project proponents at an early stage in the site design and development, via a one-hour complementary Due Diligence meeting. To set up this meeting the project proponent should complete a Project Questionnaire (form NBD-058) and submit to EMWD. To download this form or for additional information, please visit our web page www.emwd.org, then select the "Developer" link, then select the "New Development Process Forms" link. This meeting will offer the following benefits:

1. Describe EMWD's development process.
2. Identify project scope and parameters.
3. Provide a preliminary review of the project within the context of existing infrastructure.
4. Discuss potential candidacy for recycled water service.
5. Identify project submittal requirements to start the Design Conditions review.

Following the Due Diligence meeting, and to proceed with a project, the Design Conditions will need to be developed by the developer's engineer and reviewed/approved by EMWD prior to submitting improvement plans for Plan Check. The DC process and approval will provide the following:

1. Technical evaluation of the project's demands and existing system capacities.
2. Identification of impacts to existing facilities.
3. Identification of additional on-site and off-site facilities, necessary to serve the project.
4. Identification of easement requirements, if necessary.
5. Identification of potential EMWD's cost participation in facility oversizing, if applicable.

If you have questions or concerns, please do not hesitate to contact Maroun El-Hage at (951) 928-3777, extension 4468 or by e-mail at El-hagem@emwd.org.

Sincerely,

Alfred Javier
Director of Environmental and Regulatory Compliance

ARJ: hs

Attachments: Copy of Public Notice

From: Mauricio Alvarez <malvarez@riversidetransit.com>
Sent: Tuesday, March 21, 2023 3:03 PM
To: Luis Lopez <luisl@moval.org>
Subject: PEN20-0095, PEN20-0096, TTM 38459

Warning: External Email – Watch for Email Red Flags!

Hello Luis,

Thank you for including Riverside Transit Agency in the development review of the proposed 108 unit residential project on Morton Rd & Jennings Ct. After reviewing the plans, there are no comments to submit for this particular project at this time.

Thank you,

Mauricio Alvarez, MBA

Planning Analyst
Riverside Transit Agency
p: 951.565.5260 | e: malvarez@riversidetransit.com
[Website](#) | [Facebook](#) | [Twitter](#) | [Instagram](#)
1825 Third Street, Riverside, CA 92507

Dear Mr. Jason Ackerman, attorney/representative for Gateway Heights

Moreno Valley 92557, Asaon.ackerman@ackermanlawpc.com

Cc: Mr. Ulises Cabrera Mayor pro temp, mayor@moval.org,

Mr. Luis Lopez, Contract Planner City of Moreno Valley, luisl@moval.org

Mr. Sean P. Kelleher, Planning Division Manager 95 planningemail@moval.org

Mr. Edward A Delgado, District # representative, edd@moval.org

RE: Project Development- Morton Road- Moreno Valley, California

I would like to request a copy of your traffic analysis report(s) regarding Gateway Heights, Moreno Valley, California. In addition, any other pertinent information related to the Gateway Heights project in Moreno Valley.

Furthermore, to be transparent I would like a detailed project announcement to be mailed out to all the residents affected by your proposed development. Our neighbors were taken by surprise. Your informational meeting announcement for the Zoom meeting was not publicly broadcast in our area. The timeframe was such short notice. There were many neighbors who never received this informational presentation meeting announcement nor received any notices from the city of Moreno Valley. Moreover, not everyone has the knowledge to use Zoom media for online meetings.

We already have a bottleneck of congested traffic problems on Box Springs Road at the entrance to the 60 freeway. The City of Moreno Valley has not addressed these issues as well as the narrow lanes going up north or down south on Morton Road.

There are already safety hazards due to illegally parked cars on Morton Road & Box Springs Road. This is because the parking space inside the Tuscany Apartment is limited. How will this affect Seneca Elementary school?

Especially in full peak sessions during pick up and dropping off their kids. Was this factor taken into consideration in your traffic report analysis?

At the meeting, you mentioned the zoning change from (R2, R5) to R10. I believe this will dramatically have a negative economic impact on our property value. How was the rezoning determined? Was that a unilateral decision without the resident's knowledge or objection? We were not notified in a timely manner. In fact, I just barely knew about this zoom meeting from a neighbor. Our neighbors are concerned regarding this high density 108 townhouses development. Furthermore, it is NOT congruent to our custom, semi-custom homes in our area ½ acres+. We already have enough problems with homelessness and thefts in our area.

What about the overflow of cars who are unable to park at this new proposed 108 Townhouse units? How will that be addressed? Are they going to park on our streets and move it out on street sweep days?

I mentioned in our Zoom discussion, I have lived here more than 27 plus years. I have not seen any metering devices for traffic activities at Box Springs Road and Morton Road nor at the traffic entrance leading to the entrance of the 60 Freeway. Furthermore, no metering devices at the other 60 freeway entrance/exit on Day Street. All of these are very important concerns. We mentioned, if there was a fire evacuation or emergencies to those of us that live here. Are there contingency plans in place? Was this taken into consideration in your report analysis?

Please provide us with this information that will be helpful and beneficial to all of us who live here in District # 2. I want everyone to know who will be affected by your Rezoning proposal and the traffic congestions that it will cause. I am hoping we can find a happy solution so that everyone will agree.

I am copying the Moreno Valley City Planner and the mayor's office on this email hoping for fair and balanced data that can address our concerns.

I am attaching our public objection to all that will be affected by this General Plan Amendment- Change of Zoning and the Morton Project Development. Signature is to follow. I look forward to hearing from every one of you and from the city planner very soon.

Sincerely, Andy Gildore, US Marine, Veteran, Business Owner

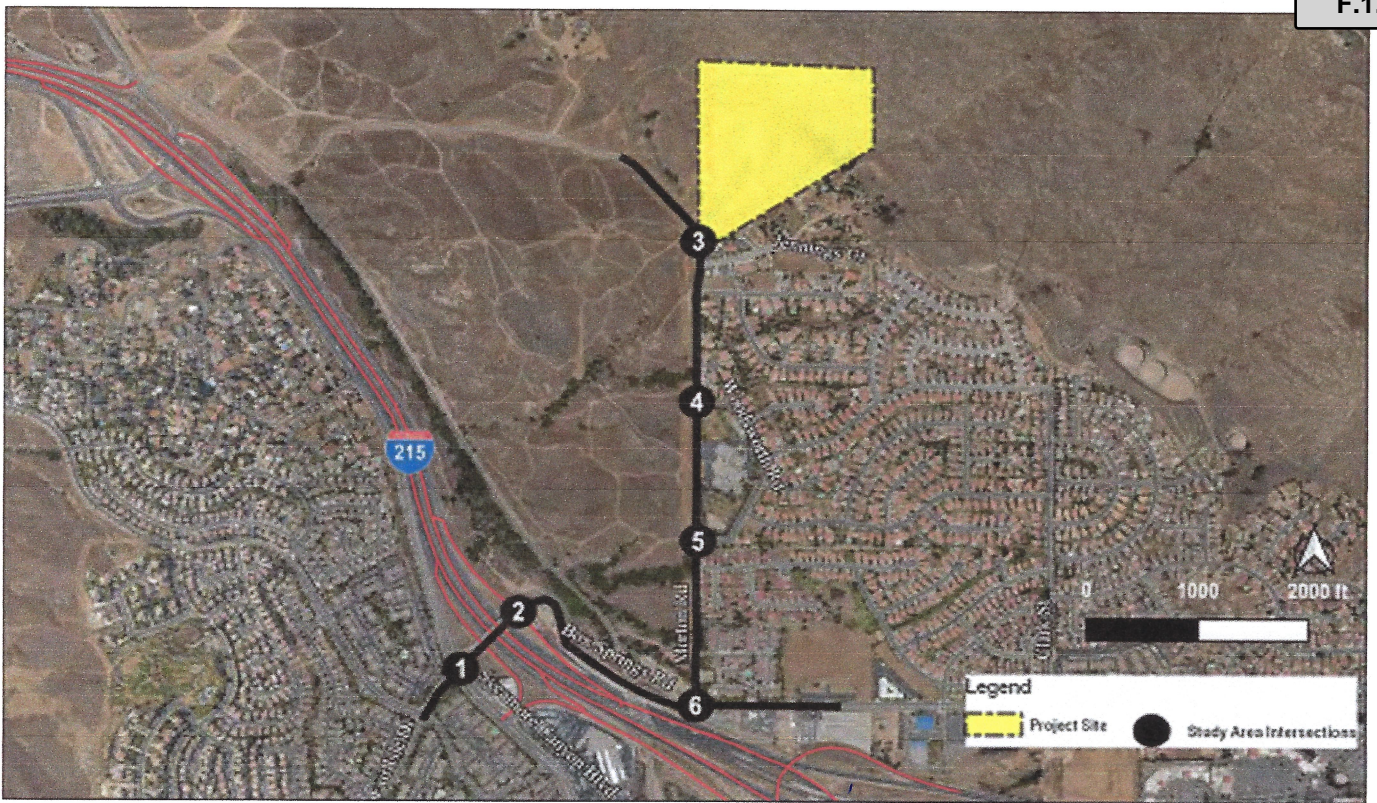
Notice of Public Objection to General Plan Amendment (PEN20-0095), Change of Zone (PEN20-0096), Conditional Use Permit for a Planned Unit Development (PEN21-0066), and Tentative Tract Map No. 38459 (PEN22-0127)

The HengHou Group, owned by Shizao Zheng, has made application to the City of Moreno Valley to construct a 108 unit development of townhouses in the most Northwestern corner of the City, North of Jennings Court, and East of Morton Road, within District Two of Moreno Valley.

The City has invited Public Comment, which is due March 31, 2023. For the following reasons, the undersigned residents of the Second District of Moreno Valley object to this proposal.

- 1) The Proposal requires and establishes a precedent for Radical Changes in Residential Density The Plan Amendment (PEN20-0095) inflicts upon our neighborhood a radical change of zone from **R2-R5 Residential** to **R10 Residential**, which is detrimental to the safe and quiet nature of our community, as well as our suburban property values. We have purchased and, at some cost, improved our single family homes in an R2-R5 zone. This significant shift to R10 zoning, with no regard to the needs of the already established community, constitutes a social and economic burden. Our community already experiences adverse effects of housing density: the apartment complex at Morton and Box Springs has brought scofflaws who dangerously park along Morton, blocking half the outgoing lane.
- 2) Traffic Congestion

The Traffic Study completed for this project is a document buried in an online file of 1197 pages. See Figures 13 and 14 on pages 996 and 998 respectively. These figures contrast current traffic volume (without the project) with anticipated traffic volume (with the project). For example, at the corner of Morton and Box Springs, during morning rush hour, there are currently 83 cars turning right onto Box Springs, headed toward the freeway. With this project, there will be 125 cars turning right. In the evening rush hour, turning left onto Morton from Box Springs, we currently see 88 cars. With this project, we are going to see 135. To summarize, we will face about 50% more traffic at Morton and Box Springs.



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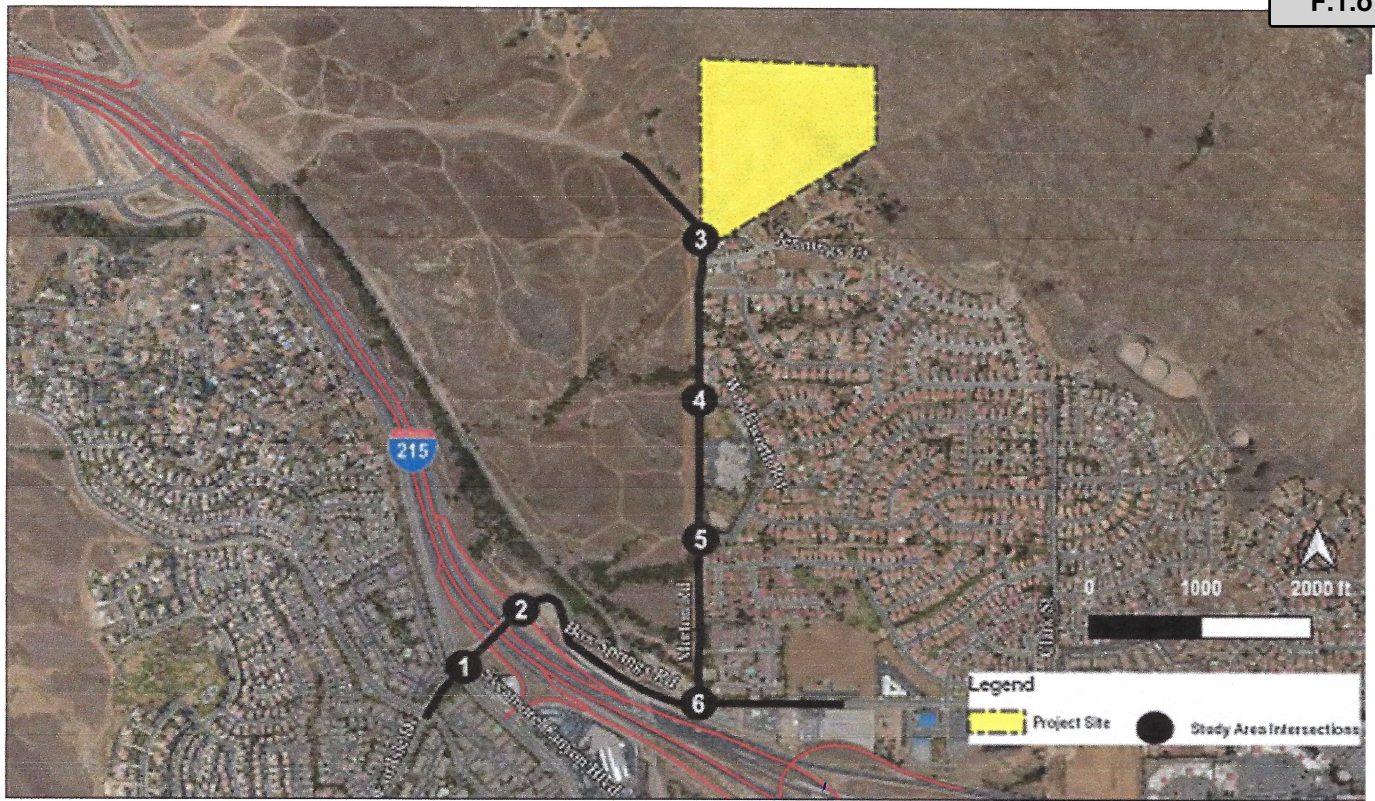
FIGURE 14

XXX / YYY AM / PM Peak Hour Traffic Volumes

Gateway Highlands Residential Project Completion With Project Peak Hour Traffic Volumes



Attachment: Public Comments Presented to Planning Commission on June 8, 2023 (6434 : Gateway Heights Tract 38459)



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FIGURE 1

XXX / YYY AM / PM Peak Hour Traffic Volumes

Gateway Highlands Residenti
Project Completion Without Project Peak Hour Traffic Volume



Attachment: Public Comments Presented to Planning Commission on June 8, 2023 (6434 : Gateway Heights Tract 38459)

From: [Steve Anderson](#)
Sent: Tuesday, March 28, 2023 5:20 PM
To: [Luis Lopez](#)
Subject: General Plan Amendment (PEN20-0095)

Warning: External Email – Watch for Email Red Flags!

Hello –

In response to the City of Moreno Valley’s request for public comments regarding the proposed development at the top of Morton Road...

While I am not outright opposed to this development, I do have SEVERAL concerns.

- From the side of Penunuri Place on which we reside, up into the foothills, and around Morton Road into unincorporated Riverside – all homes are detached single family, custom built, on 1/2 acre or larger lots. So, the development of high density multi-family housing on MUCH smaller individual parcels seems a bit out of place.
- The neighborhood is also considered a “brush zone” by insurance companies, and homeowners insurance carriers are few and far between. Potential buyers of any such home should be made aware of such limitations. I don’t want to THINK how expensive homeowners insurance will be for residents of this proposed multi-family housing development – what with it being RIGHT at the bottom of a mountain that has not burned in more than forty years. That alone could be cost prohibitive for many.
- I do not see anywhere in the vast volume of public documents plans to make any improvements to Morton Road. Sadly, the City of Moreno Valley largely ignores those living in the FAR corner of the city, often treating us as an “ugly redheaded stepchild” worthy of very little service or support. As a result, Morton Road is in VERY poor condition. Adding 1,000 vehicle trips per day, a near FIVE FOLD INCREASE over current traffic volume, is only going to worsen its condition. The City might just as well remove the asphalt and make Morton Road a dirt road. It surely couldn’t be much worse.
- A large percentage of residents living farther down Morton Road, off of Wordsworth and Pala Foxia, appear to have NO IDEA our neighborhood exists. This is evidenced by the number of vehicles which FLY right off of these feeder streets onto Morton Road without so much as slowing down – let alone stopping. In the nine years we have called Penunuri Place our home – just my family alone has had HUNDREDS of near misses with vehicles FLYING off of said feeder roads. Approval of this project with no additional traffic controls, such as a stop sign at the

lower outlet of Wordsworth, is a recipe for disaster – and WILL eventually lead to somebody being killed.

- Closely aligned to the previous concern, in the event of a mandatory mass evacuation due to fire or other disaster, I am GRAVELY concerned about the capacity of Morton Road and those to which it connects. Weekday morning traffic on Box Springs Road ROUTINELY backs up to very near Clark Street due to inadequate traffic planning by the City of Moreno Valley, the County of Riverside, and the State of California. It routinely takes me EIGHTEEN MINUTES just to reach the freeway from my home. So, I am ALREADY concerned about road capacity – and now the City is proposing to add EVEN MORE vehicle traffic. In the event of said mass evacuation – people will almost certainly die as a result.
- Some of the above concern is, of course, due to the VERY unwise decision several years ago by the County of Riverside, State of California, and whichever railroad owns the nearby tracks to close the Gernert / Poarch crossing in unincorporated Riverside we residents USED to use regularly by continuing on Morton Road up into the foothills. That cut off a MAJOR point of evacuation. I know this decision had little/nothing to do with the City of Moreno Valley – but NOW it's beginning to come back and bite those who were responsible as the City and County both explore developments in this general vicinity.
- Closely aligned to the three previous bullet points is the City of Moreno Valley's shortsighted, punt heavy decision several years ago to make its side of Morton Road alongside the Tuscan Hills Apartments a No Parking Zone. This pushed the dozens of vehicles which daily parked on the City's side of Morton Road onto the unincorporated side of Morton Road. This, of course, eliminated the City's responsibility for traffic and/or crime enforcement related to the presence of said vehicles parked on ITS side of the road. An unfortunate byproduct of this, though, is that residents of said apartments ROUTINELY park WAY up Morton Road, beyond where it reduces to a single lane in each direction – utterly obstructing/blocking the flow of traffic in the process. Now the City wants to add EVEN MORE vehicles having to navigate a daily obstacle course – all because it was too lazy to deal with the parking related issues on its side of Morton Road? As you might have guessed, the City's decision on this matter is a VERY sore spot for me.
- I am also VERY concerned about what is already the utter lack of law enforcement in our neighborhood. Filed under the same "ugly redheaded stepchild" category – there is open drug dealing and prostitution currently taking place nightly at the cul-de-sac end of Jennings Court. Despite sharing my concerns with Moreno Valley Police multiple times – they wholesale refuse to acknowledge its existence,

let alone investigate or do something to make it stop. We're already on "ignore" up here, and adding 108 multi-family housing units nearby would appear only to further exasperate such problems – although it DOES give even more residents for the City to wholesale ignore, while happily collecting their taxpayer dollars.

This is at least a start to my concerns. I may have a few more to share prior to the deadline now that I've cleared the above from my mind.

iGg,

A handwritten signature in black ink that reads "Steve". The letters are cursive and fluid.

Steve Anderson
21150 Penunuri Place
Moreno Valley, CA 92557
951.217.1885
starzajo@att.net

From: Sandra Walsh <jaswalsh@hotmail.com>
Sent: Friday, March 31, 2023 10:36 PM
To: Planning Email_DG <planningemail@moval.org>
Cc: mortonroaddevelopmentmv@gmail.com
Subject: Public Objection

Warning: External Email – Watch for Email Red Flags!

THIS WILL SERVE AS NOTICE IN SUPPORT OF PUBLIC OBJECTION TO GENERAL PLAN AMENDMENT (PEN20-0095), CHANGE OF ZONE (PEN20-0096), CONDITIONAL USE PERMIT FOR A PLANNED UNIT DEVELOPMENT (PEN21-00660, AND TENTATIVE TRACT MAP NO. 38459 (PEN22-0127). COPY OF PUBLIC OBJECTION ATTACHED.

FIRST AND FOREMOST, neither the Henghou Group nor Shizao Zheng has served proper notice as required of the application or their intent. The application should be denied on the basis alone -- that notice was not formally given to all residents and property owners within the required notification radius.

SECOND, the Box Springs/Ironwood road infrastructure is not designed for the traffic that already impedes our community from freely coming and going from our neighborhood. Moreover, our neighborhood is not regularly policed. Motorhomes, trailers and vehicles are illegally parked on Morton; drivers race down the streets with no regard for the posted speed limit or the pedestrians, children or adults, let alone stop at the posted Stop signs.

THIRD, where will the additional children attend school? Not at our neighborhood elementary school which is already overcrowded Not at our local school because already there is not enough parking for the employees that work at that school and as such, we have illegally parked educators and guardians throughout the school day and during every school event.

Our community would be better served turning the mountainous area into a nature park that supports the wildlife that currently inhabits the area and that includes, but is not limited to donkeys, bobcats, coyotes, racoons, hawks, owls, bats, etc. Improvements such as walking, biking and horse trails would discourage vagrant and "homeless" migration, while increasing the value of our neighborhood.

This community has a voice and we do not want more rentals, more crime, more congestion!

Sandra Walsh
 Larry Walsh
 21121 Tennyson Road
 Moreno Valley, CA 92557
 (951) 683-4060

Attachment: Public Comments Presented to Planning Commission on June 8, 2023 (6434 : Gateway Heights Tract 38459)

Dr. Doug Michie
1056 E Meta St Ste 103
Ventura, CA 93001-0001

from email: dougmicchie@gmail.com

4/23/2023

Chairman DeJohnette
And Planning Commissioners
Planning Commission
City of Moreno Valley
14177 Fredrick Street
Moreno Valley, CA 92553

via email to: luisl@moval.org
seanke@moval.org.

Re: Project: Gateway Heights
Hearing Date: 5/11/2023

Dear Planning Commissioners,

This letter follows a recent community outreach presentation by the developer of the Gateway Heights project. I own a lot on Penunuri Avenue neighboring this proposed project. I am writing to voice my support for the project as it will be a good addition to the neighborhood.

This area of Moreno Valley needs more multi-family housing. The cost to maintain infrastructure for traditional large lot single family homes is unsustainable, and it is to the City's interest to provide more density, so costs can be spread over a larger tax base in a more limited geographical area.

More importantly, the need for housing in California is so great that multi-family projects such as this one are needed to fulfill that unmet housing demand. Additionally, it is a good fit for the adjoining Gateway Specific Plan area. And finally, the dedication of 17 acres of open space will be a real asset to the open space and recreational needs of the city.

Again, I support this project and I hope that it can be approved with conditions that are financially reachable for the applicant.

Sincerely,

Douglas C. Michie

Doug Michie
PhD Urban Planning

June 1, 2023

City of Moreno Valley Community Development
 14177 Frederick Street Moreno Valley, California 92553
 Attn: Catherine Lin , Principal Planner (951) 413-3229
 email : catherinel@moval.org

Project Title: Gateway Heights Project
 Project Case Number(s): PEN 21-0066

To: Catherine Lin

We never received any notification from the City of Moreno Valley Community Development Department in the mail regarding the proposed Gateway Heights Project and have been unaware of the project until the placement of a sign on the property last Friday May 25, 2023. This project has a direct impact on the existing residents and we were unaware of the recent public comment period and where denied the opportunity to hear, and or provide comments relating to the proposed project. We have lived here for 40 years and are directly impacted from the project and needed to be included in the process.

After reviewing the proposed Gateway Heights Project, Project Case No.PEN 21-0066 and Change of Zoning we would like to state that we are in strong opposition to these changes given the potential aesthetic, visual, air quality, wildlife, and land use compatibility impacts on the existing residents and the West Box Springs Homeowners Association which was part of the planning process with The County of Riverside and the Gateway Center Project approved by the County of Riverside.

The introduction of a multifamily residential housing product type at the urbanized edge of the City's residential neighborhoods that currently abuts a hillside / open space area, represents an incompatibility issue. This project proposes a multifamily residential project adjacent to the rural / open space edge and away from the city core or area of intensity does not provide an appropriate transition to the area.

As stated the entire project as presented is not a comprehensive land use compatible to the area and is in conflict with the low densities reflected by the University Community Plan and the existing sparse rural residents and because it lies within the City of Riverside's sphere of influence, it should also conform to Riverside's Proposition R and Measure C land use ordinances.

Additionally by changing the land use zoning from Residential 2 (R2) and Hillside Residential (HR) 10. and significantly increasing the residential densities it will diminish the home values of the existing residents on the adjacent parcels within the original Gateway Center Specific Plan located in the County of Riverside on the west side of Morton and to the north. The Gateway Center Specific Plan (GCSP) which has only 2 high density areas located directly near the far outer edges closer to the SR-60 Freeway/ Railroad rights-of-way of the 317 acre development close to the freeway which was to

reduce the traffic through the rural/open areas to help preserve the aesthetic, visual, air quality, wildlife and rural area.

“All residential lots along the northerly and easterly perimeters of Planning Area Nos. 16 and 17 shall contain a minimum of 8,000 square feet not including land beyond the limits of grading area. Any residence constructed on these lots shall contain a minimum of 2,600 square feet of living area.” (Amended by Staff at P.C. on 10/23/91) GCSP

Traffic congestion and contaminant air pollution will be dramatically impacted by the increase of dwelling units from the current single unit home zoning at 5 per acre to multi unit apartment/condominium of 108 units. New commuter traffic will add over a thousand daily vehicle trips to an already overburdened surface street and freeway transportation system. Increase traffic adjacent to Seneca Elementary School and generating more population and noise. There is only one road Morton for access to our properties due to the closure at Gernert and Watkins for the Metro Line and increased traffic would present a safety issue during any emergency.

The entire Project site is identified as occurring in a hazardous fire area which should require further enhancement of fire hydrants located on Morton Road and at the entrance to aid the Riverside County Fire Protection Master Plan in order to achieve an a better urban level of service. Mitigation measures need to be implemented to provide for better public safety.

The proposed Gateway Center Project has the potential to deplete groundwater supplies by interfering substantially with groundwater recharge by “the change in pervious surfaces to impervious surfaces that would occur with development of the site will reduce the amount of water reaching underground aquifers.” Thus lowering the local groundwater table level and affecting the existing residents and the production rate of their pre-existing nearby wells.

Gateway Center Specific Plan No. 250 approved and adopted July 14, 1992 contained conditions of approval to help mitigate some of these impacts and other concerns of the residents directly impacted by development.

We are in strong opposition to the proposed changes for the Gateway Heights Project, Project Case No.PEN 21-0066 and any change of zoning. The project should have single family housing to alien with the planning area 16 and 17 on the Gateway Center Plan.

Thank you for the opportunity to comment on this matter. If you have any questions please contact me.

Sincerely,

Robin and Alan Ablott
10870 Pettegrew Road
Riverside, CA 92507
(951) 788-6764

The areas in dark orange/red are The Gateway Center higher density housing and the Gateway Heights project of a proposed townhouse condominium development is inconsistent with the planning areas 16 & 17 of the Gateway Center plans and the rural area.



Attachment: Public Comments Presented to Planning Commission on June 8, 2023 (6434 : Gateway Heights Tract 38459)

Sean P. Kelleher

From: ftcinc123@outlook.com <luis@finaltouchconstruction.net>
Sent: Saturday, July 29, 2023 9:37 AM
To: Sandra Walsh; Andy Gildore
Cc: Sean P. Kelleher; mortonroaddevelopmentmv@gmail.com; jason.ackerman@ackermanlawpc.com; Moreno Valley Mayor; luisl@moval.org; Planning Email_DG; Edward A. Delgado; Mike Lee; Michael Lloyd, P.E.; Brian Mohan; Melissa Walker, P.E.; Sean P. Kelleher; Jane Halstead; mmichaell@moval.org; Don Avery; Planning Notices_DG; Roberta Hawkins; joeangelocarter@aol.com; stanzahrt@sbcglobal.net; penoon@icloud.com; dantyrrel@sbcglobal.net; Illjian@hotmail.com; Elena Baca-Santa Cruz; David Martinez; Cheylynda Barnard
Subject: RE: Moreno Valley Morton Road repavement & communication failure

Warning: External Email – Watch for Email Red Flags!

Good Morning all,

I'm very involved with the city of Fontana where my business is located. I recently attended a city meeting where a similar situation was taking place here. The project did NOT pass because of all the backlash from the community. Over 200 hundred signatures and roughly 20-25 community members spoke against the project every time it was up for conversation. I share this with you so that maybe it can re-spark some interest with this matter. I plan to attend the meeting to share my thoughts regarding this project and speak against it.

Sent from [Mail](#) for Windows

From: [Sandra Walsh](#)
Sent: Sunday, June 11, 2023 1:00 PM
To: [Andy Gildore](#)
Cc: [Sean P. Kelleher](#); [mortonroaddevelopmentmv@gmail.com](#); [jason.ackerman@ackermanlawpc.com](#); [mayor@moval.org](#); [luisl@moval.org](#); [planningemail@moval.org](#); [edd@moval.org](#); [Mike Lee](#); [P.E.](#); [Brian Mohan](#); [P.E.](#); [Manuel A. Mancha](#); [Jane Halstead](#); [mmichaell@moval.org](#); [luis echeverria](#); [Don Avery](#); [planningnotices@moval.org](#); [Roberta Hawkins](#); [joeangelocarter@aol.com](#); [stanzahrt@sbcglobal.net](#); [penoon@icloud.com](#); [dantyrrel@sbcglobal.net](#); [Illjian@hotmail.com](#); [elenab@moval.org](#); [davidm@moval.org](#); [cheylyndab@moval.org](#)
Subject: Re: Moreno Valley Morton Road repavement & communication failure

Afternoon,

My husband and I live within the required written notice radius and never received anything by mail.

In addition to Andy Gildore's seven (7) issues outlined below and which we still are awaiting answers, we add an eighth (8):

8. There is a significant environmental impact to also be considered before approving this project: What is planned for re-homing the burros, bobcats, rabbits, owls, etc.?

My husband is from rural Montana and the nature that surrounds us was a huge draw when we decided to purchase our home in this neighborhood. We do not want more concrete and congestion.

Sincerely,
 Sandra and Larry Walsh

On Jun 8, 2023, at 4:56 AM, Andy Gildore <gildore@gmail.com> wrote:

Subject: Urgent Concerns Regarding the Gateway Heights Rezoning Proposal

Dear Mr. Sean Kelleher, Protemp/Mayor, District#2 Rep Mr Delgado and Concerned Neighbors, I hope this email finds you well. I am writing to bring some urgent concerns to your attention regarding the Gateway Heights proposal for rezoning from R2 Residential to R10 Residential. Unfortunately, despite my previous attempts, I have not received a confirmation for inclusion on the Moreno Valley City email listserv for events related to this proposal. This is my third request, and I would appreciate your assistance in rectifying this issue.

Furthermore, I have discovered that only two streets in the vicinity of the proposed site received a Public Hearing Notice for June 8, 2023, 6 p.m. by U.S. mail, while the remaining residents were solely informed through a posted sign at the property. This lack of consistent notification has left many of us feeling taken aback and excluded from the decision-making process.

Regrettably, I must express my disappointment with the City of Moreno Valley's communication practices, not only towards its citizens but also in regard to responsiveness. Myself and other concerned neighbors have reached out to the contract planner and Moreno Valley City Officials via email, but we have yet to receive any form of acknowledgment or response. This absence of transparency, trust, and integrity in ensuring equal access and open communication is disheartening.

To provide clarity, let me outline the concerns of our community regarding the proposed rezoning:

1. Preservation of the R2 zoning: We strongly believe that maintaining the R2 zoning is essential to preserving the character of our neighborhood. The proposed R10 rezoning would introduce high-density townhome units that are not in harmony with our existing semi-custom to custom homes.
2. Parking concerns: We seek clarification on how the overflow of cars from the proposed townhomes will be accommodated. If a family has more than two cars, where will the additional vehicles be parked? We also question the monitoring and enforcement of any regulations in place and the potential consequences for non-compliance.
3. Community Park management: It is imperative to address the concerns surrounding the proposed Community Park. Specifically, we need reassurance that measures will be in place to prevent issues such as homelessness, loitering, encampments, and the accumulation of trash within the park area.
4. Emergency preparedness: Given the potential risks to our health and safety, we need to understand the evacuation plans in case of emergencies such as road closures or fires. It is crucial that adequate measures are in place to protect lives and properties in the event of an unfortunate incident.
5. Traffic impact mitigation: The absence of an unbiased traffic study report raises concerns regarding the proposed development's impact on our already congested Morton Road. Considering the 108 units, each with a 2-car garage, we estimate a significant increase of 216 to 324 cars on Morton Road alone. We urge the City of Moreno Valley to address this issue and provide a comprehensive plan to alleviate the potential traffic problems.
6. Property value compensation: We kindly request clarification on whether the City of Moreno Valley will provide compensation for any potential depreciation in property values resulting from the rezoning and the construction of the proposed townhomes.

We believe that the proposed rezoning from R2 to R10 will exacerbate the aforementioned concerns and negatively impact our community. Therefore, we urgently request your attention to these matters and seek your support in addressing and rectifying these issues.

Thank you for your time and consideration. We look forward to your prompt response, as our community's well-being and quality of life are at stake.

Sincerely,
 Andy Gildore
 Business Owner
 U.S. Marine Corps Veteran

On Mon, May 1, 2023 at 7:27 AM Andy Gildore <gildore@gmail.com> wrote:

Dear Mr. Sean Kellher,

How are you doing? I hope all is well with you. On the early morning of Thursday, April 27th, 2023. All of our neighbors were taken by surprise because the entire Morton Road was closed. The entire Morton Road was being repaved from Box Springs Road to Jennings Court. Thank you very much, it was long overdue.

However, this is a formal complaint I want registered to the City of Moreno Valley and to the person in-charge of this project. We were not only late for work and important appointments. Our time/fuel wasted driving around without any detour signs posted in advance especially to all of us who live and use this road.

I believe the City of Moreno Valley has the obligation and responsibility to notify residents in writing prior to starting this project. In addition, we kept driving from one closed street to another without any directional signs. We were trapped in heavy traffic. I did talk to one of the street workers who mentioned- **"All American Asphalt and Western Asphalt" were hired by the City of Moreno Valley.** I made a remark to the worker that there were no detour signs nor advance notification posted. There should have been signs all around. The closure start/stop dates and alternate routes. So that we are aware of the appropriate day or two before this repaving project starts. Our only exit out of the area was Clark Street to Box Springs Road/Ironwood Ave. Later that morning the signs and safety cones were placed with detours posted with arrows. Too little too late.

Mr. Kellher, this is unacceptable a total communication breakdown under the watch of Moreno Valley City. There is a serious communication failure. We are taxpayers that fund the city personnel (their salary) who are public servants. This is a total disregard of our health, safety and well-being. Is it because they don't live here because of lack of care or it's a disorganized system? **Do you think if dignitaries live here --- yourself or colleagues, would this happen here?** It is so upsetting for this to have happened. Please forward this email to the officer in-charge of this project.

By the way, in my previous email you mentioned that my email will be registered on alert notification regarding Gateway Heights projects or any projects related to Morton Road or activity development alerts. I never received any city confirmation email of such listserv or bulletins. Please subscribe to me on this mailing list. In today's communication technology, there are vast ways of Media resources to broadcast information. We should have been notified. I have served my military time honorably for our country. "First to go, last to know" I expect some common-sense open transparent communication by those individuals in charge in the chain of command. Thank you !

Furthermore, by this event it is a perfect example NOT to rezone (R2-R5 to R10) or building the Gateway Heights project of 108 Townhouses. The traffic congestion is not conducive to our environment, quality of life and above all our property value.

If there was a fire or any evacuation emergencies we will be trapped because this is the only main road to get out because the dirt road is also closed off. **Clark Street is our only other way out.** Morton Road is a single lane going up and one lane going down by Seneca Elementary School. There will also have a negative impact on the elementary school to their kid's learning environment.

This is a formal notice I want registered that we will hold the City of Moreno Valley liable and responsible. In the future development of this area, it is unconscionable to build high density homes without ingress/egress accessibility, safety, and proper traffic flow. We already have traffic congestion. Thank you for your kind understanding and appreciate your cooperation.

Sincerely,
 Andy Gildore

U.S. Marine Veteran & Business Owner

Attachment: Public Comment for City Council (6434 : Gateway Heights Tract 38459)

Sean P. Kelleher

From: Frank Almeida <frnkalmeida@gmail.com>
Sent: Tuesday, August 29, 2023 6:41 PM
To: Moreno Valley Mayor; Edward A. Delgado; Elena Baca-Santa Cruz; David Martinez; Cheylynda Barnard
Cc: Sean P. Kelleher; Catherine Lin; Jason.ackerman@ackermanlawpc.com
Subject: Gateway Heights Project - Letter of Support - Sept. 5, 2023 City Council Meeting

Warning: External Email – Watch for Email Red Flags!

[Preview attachment FW: Thank you for your time today.eml](#)



[FW: Thank you for your time today.eml](#)
[172 KB](#)

Dear Mayor Cabrera and City Councilmembers:

My name is Frank Almeida and I live at 21012 Pala Foxia Place in Moreno Valley. On June 8, 2023, I attended the Moreno Valley Planning Commission meeting and expressed my opposition to the Gateway Heights project. Based on my conversations with the Gateway Heights project representative, Jason Ackerman, and City Staff, I am sending you this email **in support of the project.**

Jason gave me his contact information at the Planning Commission meeting and we connected a couple of days later. We talked about the project's traffic impact analysis, the existing roadway conditions and illegal parking on Morton Road, and issues related to homelessness and illegal dumping. Jason introduced me to Sean Kelleher and Catherine Lin via email and I shared additional concerns about illegal off-roading and illegal parking in our residential tract. (See attached email). Sean forwarded my concerns to various departments within the City and we are continuing to work together on these issues.

Based on my conversations with Jason and the City Staff, my opinion about the Gateway Heights project has changed. I believe the Gateway Heights project is a well-planned project that will not make any of the existing traffic problems worse. Also, the project will improve the area by offering new homes, completing flood control improvements, and contributing land to the Box Springs Canyon Preserve. Therefore, I am sending you this email in support of the Gateway Height project.

Sincerely,

Frank Almeida

Attachment: Public Comment for City Council (6434 : Gateway Heights Tract 38459)



translutions, inc.
 17632 Irvine Boulevard, Suite 200,
 Tustin, California 92780
 Phone (949)656-3131 Fax (949)445-3131
 solutions@translutions.com

November 13, 2023

Mr. Jason Ackerman
 Ackerman Law PC
 (via email)

Subject: Gateway Heights Moreno Valley – Parking Study

Dear Jason:

Translutions, Inc. (Translutions) is pleased to provide this parking study report summarizing the parking demand and supply for the proposed Gateway Heights residential project in the City of Moreno Valley. This analysis has been conducted based on the Off-Site Parking Standards from the City of Moreno Valley Municipal Code as well as the Institute of Transportation Engineers' (ITE) Parking Generation, 5th Edition.

PROJECT DESCRIPTION

The proposed project site is located on the eastside of Morton Road and north of Jennings Court and proposes the construction of 108 detached condos. Access to the project will be provided by one full-access driveway on Morton Road. The proposed project provides 283 parking spaces.

PARKING REQUIREMENT PER CITY CODE

Moreno Valley Municipal Code. Chapter 9.11 *Parking, Pedestrian and Loading Requirements, Section 9.11.040 Off-street parking requirements* provides the number of off-site parking requirements for the City. Table 9.11.040A-12 (relevant uses summarized below) shows the number of parking spaces required for relevant uses:

Table 9.11.040A-12 Off-Street Parking Requirements

Residential Uses	Requirement	Covered Parking	Notes
Single-family	2/unit	Within an enclosed garage	
Duplex	2/unit	Within an enclosed garage	
3 or more units:			Guest parking is required for all units at 0.25 spaces/unit. Guest parking is included in the minimum required parking standard.
Studio	1.25/unit	1 covered/unit	
1 bedroom	1.5/unit	1 covered/unit	
2 bedrooms	2.0/unit	1 covered/unit	
3+ bedrooms	2.5/unit	2 covered/unit	

PARKING ANALYSIS PER CITY CODE

This analysis evaluates the following scenarios:

1. Using rates for Single Family/Duplex Units
2. Using rates for 3 or more units for the following scenarios:
 - a. 50% 2-bedroom & 50% 3+ bedroom units
 - b. 100% 3+ bedroom units

Single Family/Duplex Units. The City Code requirements listed in *Table 9.11.040A-12 Off-Street Parking Requirements* requires two (2) spaces per dwelling unit. Since the project proposes 108 units, the parking requirement would be 216 spaces. The proposed project provides 283 parking spaces, which is 31% higher than what is required by City Code.

Multiple Unit Development (3 or More Units). For projects that propose more than 3 units, the City Code requires parking based on number of bedrooms. This evaluation is based on the requirements listed in *Table 9.11.040A-12 Off-Street Parking Requirements*. This scenario evaluates one scenario where half the units (54 units) are 2-bedroom units, and the remainder are 3+ bedroom units.

50% 2-Bedroom & 50% 3+ Bedroom Units. Table A shows the number of spaces required under this scenario. As seen in Table A, the City Code requires 243 parking spaces. The proposed project provides 283 parking spaces, which is approximately 16% higher than what is required by City Code.

Attachment: Parking Study_November 13 2023 (6434 : Gateway Heights Tract 38459)

Table A: Parking Requirements for 50% 2-Bedroom & 50% 3+ Bedrooms (City Code)

Unit Type	# of Units	Rate	Required Parking
Studio	0	1.25/unit	0
1 bedroom	0	1.5/unit	0
2 bedrooms	54	2.0/unit	108
3+ bedrooms	54	2.5/unit	135
Total Units	108		243

100% 3+ Bedroom Units. This scenario was evaluated to identify how many spaces would be required if all units were constructed with more than 3 bedrooms. Table B shows the number of spaces required under this scenario. As seen in Table B, the City Code requires 270 parking spaces. The proposed project provides 283 parking spaces, which is approximately 5% higher than what is required by City Code.

Table B: Parking Requirements for 100% 3+ Bedrooms (City Code)

Unit Type	# of Units	Rate	Required Parking
Studio	0	1.25/unit	0
1 bedroom	0	1.5/unit	0
2 bedrooms	0	2.0/unit	0
3+ bedrooms	108	2.5/unit	270
Total Units	108		270

PARKING REQUIREMENT PER ITE PARKING GENERATION, 5TH EDITION

The ITE *Parking Generation*, 5th Edition is based on actual surveys and provides different rates based on observations during weekday and weekends. The data is segregated based on Dense Multi-Use Urban areas and General Urban/Suburban areas. The data is further divided based on whether the observed site is within ½ mile of transit or not. This analysis is based on data for General Urban/Suburban ("Not within ½ mile of transit). Further, the ITE does not provide data for Single Family Residential uses and similar to the analysis based on City Code, the evaluation is based on rates for Low-Rise Multi-Family Residential development. Table C shows the parking demand for weekday and weekend days. As seen in Table C, the peak demand occurs on Sunday with a demand of 220 parking spaces. The proposed project provides 283 parking spaces, which is approximately 29% higher than the forecast demand.

Table C: Peak Parking Demand Based on ITE

Land Use	Units ¹	ITE Vehicle Parking Generation Rates						Project Parking Demand					
		Average Rate			85th Percentile Rate			Average Rate			85th Percentile Rate		
		Week.	Sat.	Sun.	Week.	Sat.	Sun. ²	Week.	Sat.	Sun.	Week.	Sat.	Sun.
Multi-Family Housing Low Rise Not Close to Transit	108 DU	1.21	1.31	1.66	1.52	1.61	2.04	131	141	179	164	174	220
Total Parking Provided								283	283	283	283	283	283
Total Parking Required								131	141	179	164	174	220
Parking Surplus (+)/Parking Deficit (-)								152	142	104	119	109	63

Notes:

¹ Based on Land Use 220 - "Multifamily Housing (Low-Rise) General Urban/Suburban No Nearby Rail Transit" from Institute of Transportation Engineers (ITE) Parking Generation (5th Ed.)

² 85th Percentile Rate for Sunday not available. Calculated by applying ratio of 85th percentile & average rate for Saturday applied to average Sunday rate.

CONCLUSION

Based on the above analysis, it is our professional opinion that the proposed project provides more parking spaces than required either by City Code or those based on observations by the ITE Parking Generation, 5th Edition.

If you have any questions, please do not hesitate to contact us at (949) 656-3131.

Sincerely,

translutions, inc.

Sandipan Bhattacharjee, P.E., T.E., AICP, ENV SP
Principal

Applicant Volunteered Conditions of Approval

- 1:** The projects Covenants, Codes and Restrictions (CC&R's) shall include a restriction that prohibits residents from using attached garages for storage and requires residents to use their garages for off-street parking. Said statement shall be consistent with the following language: "No resident may convert or use any garage for purposes other than parking of the number of vehicles such garage was designed to contain and storage of reasonable amounts of household goods that do not interfere with the ability to park the number of vehicles such garage was designed to accommodate or create a fire or safety hazard."
- 2:** The projects Covenants, Codes and Restrictions (CC&R's) shall include a parking permit policy, requiring all residents to register their vehicles with the HOA in order to prohibit residents from utilizing designated guest parking spaces.
- 3:** The Applicant shall provide a minimum of twenty-seven (27) guest parking spaces, clearly identified with signage. The final location of said spaces shall be reviewed and approved by the Planning Official.



Report to City Council

TO: Mayor and City Council

FROM: Melissa Walker, Public Works Director/City Engineer

AGENDA DATE: December 5, 2023

TITLE: REQUEST FOR TEMPORARY CLOSURE OF GRANDE VISTA DRIVE

RECOMMENDED ACTION

Recommendation:

1. Conduct a public hearing to adopt Resolution No. 2023-XX approving the temporary closure of Grande Vista Drive south of Bonita Heights

SUMMARY

Grande Vista Drive, south of Bonita Heights Drive is a local street that ends in a cul-de-sac. Over the years the location has become popular for loitering and illegal activity. In March 2022, at the request of Pacific Iris Moreno Valley Homeowner's, the City placed temporary delineators and barricades to prevent motorists from congregating in the area. However, over the past year the temporary traffic barricades are continuously being vandalized or moved to access the area causing safety concerns to the local residents. On April 2023, the Pacific Iris Communities HOA reached out to the City requesting a more permanent solution.

DISCUSSION

Grande Vista Drive is a residential collector with a posted speed limit of 25 mph. The street is approximately 2,500 feet long and serves as an entrance to three separate developments. At the top of the Grande Vista Drive cul-de-sac is a trailhead that connects with several hiking and mountain bike paths used by residents. However, the area is also where many unwanted activities (drugs, loud music, physical encounters, etc.) take place disrupting the neighborhood and presenting a safety concern for the residents nearby especially during late evening hours.

To address the loitering and unwanted activities, the City placed several wooden barricades and glue-downed type delineators to restrict vehicles from continuing southerly beyond Bonita Heights Drive. Despite the placement of these temporary barriers, individuals continue to remove them to gain access to the top of the cul-de-sac where they participate in the unwanted activities. Weekly maintenance of the barriers is required to keep the devices in place. This continued behavior has prompted board members of the HOA to reach out to the City requesting a more permanent solution. City staff met with the Fire Department to determine what actions could be taken without compromising public safety. A high-visible reflective pipe gate was recommended to mitigate the unwanted activity. The gate will allow for a more permanent solution while simultaneously reducing maintenance cost. The installation of the reflective pipe gate will close off the travel way only while still providing pedestrian and bicyclist access to the trailhead.

The cul-de-sac provides access to a handful of agencies including California State Parks (Lake Perris), Moreno Valley College, and Eastern Municipal Water District who own property in the area. These agencies, including police and fire departments will be given access to the gate and be allowed to access the unrestricted area.

The installation of the reflective piped gate will be temporary. Per California Vehicle Code Section 21101.4, the City has the authority to close the street for a period of 8 consecutive 18-month terms (144 months or 12 years). This will be the first official 18-month period and will expire in March 2025. Prior to the initial expiration date, a 2nd public hearing and staff report will be presented to determine if the temporary closure should continue.

As a requirement, public notices of this action were installed at the location informing the public that this portion of Grande Vista Drive's cul-de-sac will be closed. The managers from both the Moreno Valley Ranch and Pacific Iris Moreno Valley Homeowner's Association were informed of this action and were supportive of the reflective piped gate installation. In addition to the public notices, the HOA's also distributed this information to their members who may be interested in this matter and were advised they can attend the meeting.

Staff presented it to the Traffic Safety Commission (TSC) meeting on October 4, 2023, with the overwhelming support from attendees. Furthermore, TSC approved the recommended actions.

The proposed street closure plan was made available for public view on August 9, 2023, and a public hearing notice was published in Press Enterprise on November 22, 2023.

ALTERNATIVES

1. Approve and authorize the recommendations as presented in this report. *This alternative will allow the street closure to move forward in a timely manner.*

- 2. Do not approve the recommended actions as presented in this staff report. *This alternative will deny the residents' request and allow the loitering and unwanted activities.*

FISCAL IMPACT

The project is funded by the existing operation budget. There is no impact to the General Fund.

NOTIFICATION

Publication of agenda

PREPARATION OF STAFF REPORT

Prepared By:
Wei Sun, T.E., PTOE
City Traffic Engineer

Department Head Approval:
Melissa Walker, P.E
Public Works Director/City Engineer

CITY COUNCIL GOALS

None

CITY COUNCIL STRATEGIC PRIORITIES

- 1. Economic Development
- 2. Public Safety
- 3. Library
- 4. Infrastructure
- 5. Beautification, Community Engagement, and Quality of Life
- 6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

- 1. Grande Vista Temporary Street Closure map 11-2023
- 2. Grande Vista v1
- 3. Public Hearing Notice - Grande Vista Drive Closure and Gate (FINAL)

APPROVALS

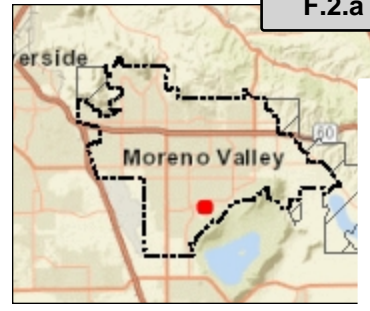
Budget Officer Approval	<u>✓ Approved</u>	11/27/23 3:58 PM
City Attorney Approval	<u>✓ Approved</u>	

City Manager Approval

✓ Approved

11/27/23 4:04 PM

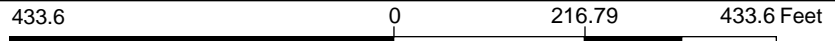
Grande Vista Temporary Street Closure



- Legend**
- Curb Lines
 - Curb
 - Pavement
 - Track
 - Road Labels**
 - City Boundary
 - Sphere of Influence
 - CLOSED SECTION

Image Source: Nearmap

Notes:



DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

Attachment: Grande Vista Temporary Street Closure map 11-2023 (6334 : REQUEST FOR TEMPORARY

RESOLUTION NO. 2023-_____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA,

WHEREAS, Grande Vista Drive is a residential collector with a posted speed limit of 25 mph, and

WHEREAS, Grande Vista Drive, south of Bonita Heights Drive is a local street that ends in a cul-de-sac, and

WHEREAS, over the years, the location has become a popular location for loitering and illegal activity, and

WHEREAS, the Pacific Iris Communities HOA reached out to the Mayor requesting the City consider street closure; and

WHEREAS, the City may by ordinance or resolution adopt regulations temporarily closing a roadway within its jurisdiction after holding a public hearing.

WHEREAS, a public hearing was held on October 4, 2023; and

WHEREAS, temporary closure must not be for more than 18 months, although closure may be extended for not more than eight consecutive 18-month periods

NOW, THEREFORE, BE IT RESOLVED by the City council of the City of Moreno Valley, California, subject to the conditions hereinbelow stated, that Grande Vista Drive south of Bonita Heights is authorized to be closed temporarily for the duration of 18 months.

APPROVED AND ADOPTED this _____ day of _____, 2023.

Ulises Cabrera
Mayor
City of Moreno Valley

ATTEST:

Resolution No. YYYY-_____
Date Adopted: Month DD, YYYY

Attachment: Grande Vista v1 (6334 : REQUEST FOR TEMPORARY CLOSURE OF GRANDE VISTA DRIVE)

Jane Halstead, City Clerk

APPROVED AS TO FORM:

Steve Quintanilla, City Attorney

Attachment: Grande Vista v1 (6334 : REQUEST FOR TEMPORARY CLOSURE OF GRANDE VISTA DRIVE)

Resolution No. YYYY-2
Date Adopted: Month DD, YYYY

RESOLUTION JURAT

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss.
CITY OF MORENO VALLEY)

I, Jane Halstead, City Clerk of the City of Moreno Valley, California, do hereby certify that Resolution No. YYYY-___ was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the ____ day of _____, YYYY by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and Mayor)

JANE HALSTEAD, CITY CLERK

(SEAL)

Attachment: Grande Vista v1 (6334 : REQUEST FOR TEMPORARY CLOSURE OF GRANDE VISTA DRIVE)

Resolution No. YYYY-___ 3
Date Adopted: Month DD, YYYY



**CITY OF MORENO VALLEY
NOTICE OF PUBLIC HEARING TO CLOSE A PORTION OF GRANDE VISTA
DRIVE PURSUANT TO CALIFORNIA VEHICLE CODE SECTION 21101.4.**

NOTICE IS HEREBY GIVEN that a Public Hearing will be held by the City Council of the City of Moreno Valley on the date and time set forth below:

The Public Hearing will be held on **Tuesday, December 5, 2023, at 6:00 p.m.** to review and approve this temporary street closure at:

**City of Moreno Valley, City Hall Council Chambers
14177 Frederick Street, Moreno Valley, CA 92552**

HEARING TITLE: Eighteen (18) Month Temporary Street Closure of approximately 650' of Grande Vista Drive beginning south of the intersection of Bonita Heights Drive and ending at the cul-de-sac of Grande Vista Drive in Council District 4.

PUBLIC DESCRIPTION: Pursuant to the authority granted to the City through California Vehicle Code Section 21101.4, the subject street was previously closed to through vehicular traffic due to serious and continual criminal activity. This request for an eighteen (18) month time extension is in accordance with Vehicle Code Section 21101.4. The subject street will remain physically closed to through vehicular traffic to help deter criminal activity once the time extension for the subject street has been approved by the City Council.

ENVIRONMENTAL DETERMINATION: Temporary closures of streets constitutes a minor alteration of a public facility, with no increase in use and no additional automobile lanes. The action is categorically exempt from CEQA review pursuant to CEQA Guidelines section 15301(c) (Existing Facilities). No further CEQA review is required.

PUBLIC TESTIMONY: All interested parties will be provided an opportunity to submit oral testimony during the public hearing and/or provide written testimony during or prior to or at the public hearing. More information can be found on the Agenda, which will be posted on the City's website at least 72 hours prior to the meeting <http://morenovalleyca.igq2.com/Citizens/default.aspx>

GOVERNMENT CODE § 65009 NOTICE: If you challenge any of the proposed actions taken by the City Council in court, you may be limited to raising only those issues you or someone else raised during the Public Hearing described in this notice, or in written correspondence delivered to the Public Works Department of the City of Moreno Valley during or prior to the Public Hearing.



ACCESSIBILITY: Upon request and in compliance with the Americans with Disabilities Act of 1990, any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to James Verdugo, ADA Coordinator, at (951) 413-3350 at least 72 hours before the meeting. The 72-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

For more information, please contact the Transportation Engineering Division within the Public Works Department at 951.413.3140.



Report to City Council

TO: Mayor and City Council

FROM: Sean P. Kelleher, Community Development Director

AGENDA DATE: December 5, 2023

TITLE: MUNICIPAL CODE AMENDMENT AMENDING CHAPTER 9.02 (PERMITS AND APPROVALS), CHAPTER 9.03 (RESIDENTIAL DISTRICTS), CHAPTER 9.05 (INDUSTRIAL DISTRICTS), CHAPTER 9.14 (LAND DIVISIONS), AND CHAPTER 9.16 (DESIGN GUIDELINES) OF TITLE 9 (PLANNING AND ZONING)

RECOMMENDED ACTION

Recommendation: That the City Council:

1. **CONDUCT** the First Reading of Ordinance No. XXXX and Introduce the Ordinance amending Sections 9.02.020, 9.03.040, 9.03.055, 9.03.070, 9.03.080, 9.05.040, 9.14.100, and 9.09.170 of Title 9 of the Moreno Valley Municipal Code to provide updates consistent with new State Law and Housing and Community Development (HCD) requirements, streamline Code requirements to provide flexibility and clarity regarding existing requirements, and provide for other minor clarifications and clean-up items.

SUMMARY

This Municipal Code Amendment revises various sections of Title 9 (Planning and Zoning) for the following purposes:

- A. To make necessary revisions consistent with new State laws related to housing; and
- B. To make minor clarifications in various provisions and clean-up various items.

BACKGROUND

On November 9, 2023, the Planning Commission unanimously recommended the City

Council adopt the proposed Ordinance and find the proposed Ordinance is exempt from the California Environmental Quality Act.

PROJECT DESCRIPTION

The discussion of the sections below corresponds to the order of the text amendments set forth in the attached Ordinance.

Section 9.02.020 (Permitted Uses)

This proposed amendment will add “Truck Charging Facilities” to Table 9.02.020-1 within the Permitted Uses section, permitted within the Industrial (I) and Light Industrial (LI) Districts, and as a Conditionally Permitted Use within the Community Commercial (CC) District.

Section 9.03.040 (Residential Site Development Standards)

This proposed amendment will remove duplicate information from Section 9.03.040.

Section 9.03.055 (Density Bonus Program for Green Building and Energy Efficiency)

This section currently provides a five percent residential density incentive to multifamily residential developments within the R10, R15, R20, R30, and SP204-Village Residential Districts that achieve certain green building standards. This proposed amendment would extend that incentive to new multifamily developments within the MUN, MUC, MUI, H-OC, COMU, and DC Districts.

Section 9.03.070 (Streamlined Ministerial Approval Process (Senate Bill 35))

This new section will establish a streamlined ministerial review and public oversight process for the final review and approval of SB 35 applications to help address the state’s continuing housing crisis.

Section 9.03.080 (Streamlined Ministerial Approval Process (Senate Bills 330 and 8))

This new section establishes a streamlined ministerial review and public oversight process for the final review and approval of SB 330 applications to help address the state’s continuing housing crisis.

Section 9.05.040 (Industrial Site Development Standards)

This proposed amendment provides additional site development requirements for Industrial zoning districts. These new standards will require a minimum of 10% of the required truck parking stalls with appropriately sized conduit(s) to allow for the installation of future truck charging facilities for all new industrial buildings with more than 30 required truck parking stalls. This proposed amendment also addresses the installation of directional signage, solar-ready roofs, and electrical room sizing requirements.

Section 9.14.100 (Land Division Dedications, Improvements, Fees and Reservations)

This proposed amendment requires the construction of full-width street improvements along the right-of-way which abut most new subdivisions and development projects.

Section 9.16.170 (Applications for Hillside Development Permit)

This proposed amendment adds language to require adherence to the Hillside Development Guidelines during the planning application review process.

ENVIRONMENTAL

The proposed Municipal Code Amendments are exempt from the California Environmental Quality Act in accordance with Section 15061(b)(3) of the CEQA Guidelines in that the amendments involve general policy and procedure making, and it can be seen with certainty that there is no possibility that the amendments will have a significant effect on the environment, as the enacting ordinance is not considered a “project” under CEQA.

ALTERNATIVES

1. Approve the proposed Recommended Actions set forth in this staff report. *Staff recommends this alternative.*
2. Do not approve the proposed Recommended Actions as set forth in this staff report. *Staff does not recommend this alternative since it would leave critical portions of the Municipal Code out of compliance and/or inconsistent with newly enacted State laws.*

FISCAL IMPACT

There are no fiscal impacts anticipated from the approval and adoption of this Ordinance. However, it is anticipated that the proposed modifications will streamline business and development regulations, which is expected to have a positive impact on business and development which will result in a positive fiscal impact for the City.

NOTIFICATION

Consistent with the Municipal Code provisions pertaining to public notification of this item, public notice was published in the Press Enterprise Newspaper.

PREPARATION OF STAFF REPORT

Prepared By:
Danielle Harper-Scott
Associate Planner

Department Head Approval:
Sean P. Kelleher
Community Development Director

Concurred By:
Julia Descoteaux
Principal Planner

CITY COUNCIL GOALS


Revenue Diversification and Preservation. Develop a variety of City revenue sources and policies to create a stable revenue base and fiscal policies to support essential City services, regardless of economic climate.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

CITY COUNCIL STRATEGIC PRIORITIES

- 1. Economic Development
- 2. Public Safety
- 3. Library
- 4. Infrastructure
- 5. Beautification, Community Engagement, and Quality of Life
- 6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

- 1. Ordinance XXXX

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/27/23 4:12 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/27/23 4:22 PM

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MORENO VALLEY, CALIFORNIA, AMENDING VARIOUS SECTIONS WITHIN TITLE 9 (PLANNING AND ZONING), INCLUDING CHAPTER 9.02 (PERMITS AND APPROVALS), CHAPTER 9.03 (RESIDENTIAL DISTRICTS), CHAPTER 9.05 (INDUSTRIAL DISTRICTS), CHAPTER 9.14 (LAND DIVISIONS), AND CHAPTER 9.16 (DESIGN GUIDELINES) OF THE MORENO VALLEY MUNICIPAL CODE

WHEREAS, the City of Moreno Valley (“City”) is a general law city and a municipal corporation of the State of California; and

WHEREAS, pursuant to the authority granted the City by Article XI, Section 7 of the California Constitution, the City has the police power to adopt regulations designed to promote the public convenience or the general prosperity, as well as regulations designed to promote the public health, morals and/or safety; and

WHEREAS, Section 9.02.050 (Amendments to zoning districts or other provisions of Title 9) of Chapter 9.02 (Permits and Approvals) of Title 9 (Planning and Zoning) of the Municipal Code provides that either the staff or the Planning Commission may initiate amendments to the provisions of Title 9; and

WHEREAS, staff has recommended to the Planning Commission that it recommend that the City Council adopt several amendments to Title 9, which include revising certain provisions of Chapter 9.02 (Permits and Approvals), Chapter 9.03 (Residential Districts), Chapter 9.05 (Industrial Districts), Chapter 9.14 (Land Divisions) and Chapter 9.16 (Design Guidelines) (collectively referred to herein as “PEN23-0125”); and

WHEREAS, PEN23-0125 will clarify various development standards to provide some flexibility regarding existing requirements, make it less costly for the public with respect to processing certain entitlements and streamline certain entitlement procedures for efficiency purposes, all of which will promote economic development within the City; and

WHEREAS, staff has determined that PEN23-0125 is consistent with the MOVAL 2040 General Plan and its goals, objectives, policies, and programs, and with any applicable specific plan; and

WHEREAS, staff has further determined that PEN23-0125 will not adversely affect the public health, safety or general welfare; and

WHEREAS, staff has also determined that PEN23-0125 is consistent with the purposes and intent of Title 9; and

WHEREAS, staff has determined that PEN23-0125 amendments are exempt from the California Environmental Quality Act in accordance with Section 15061(b)(3) of the

CEQA Guidelines in that the amendments involve general policy and procedure making, and it can be seen with certainty that there is no possibility that the amendments will have a significant effect on the environment.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF MORENO VALLEY DOES ORDAIN AS FOLLOWS:

Section 1. RECITALS

That the above recitals are true and correct and are incorporated herein as though set forth at length herein.

Section 2. AUTHORITY

That this Ordinance is adopted pursuant to the authority granted by Article XI, Section 7 of the Constitution of the State of California and California Government Code Section 37100, and it is not intended to be duplicative of state law, or be preempted by state legislation.

Section 3. AMENDMENT TO SECTION 9.02.020 (PERMITTED USES)

Section 9.02.020 (Permitted Uses) of Chapter 9.02 (Permits and Approvals) of Title 9 (Planning and Zoning) is hereby amended as set forth in Exhibit A.

Section 4. AMENDMENT TO SECTION 9.03.040 (RESIDENTIAL SITE DEVELOPMENT STANDARDS)

Section 9.03.040 (Residential Site Development Standards) of Chapter 9.03 (Residential Districts) of Title 9 (Planning and Zoning) is hereby amended as set forth in Exhibit B.

Section 5. AMENDMENT TO SECTION 9.03.055 (DENSITY BONUS PROGRAM FOR GREEN BUILDING AND ENERGY EFFICIENCY)

Section 9.03.055 (Density Bonus Program for Green Building and Energy Efficiency) of Chapter 9.03 (Residential Districts) of Title 9 (Planning and Zoning) is hereby amended as set forth in Exhibit C.

Section 6. ADDING SECTION 9.03.070 (STREAMLINED MINISTERIAL APPROVAL PROCESS (SENATE BILL 35)) TO CHAPTER 9.03 (RESIDENTIAL DISTRICTS)

Section 9.03.070 (Streamlined Ministerial Approval Process (Senate Bill 35)) of Chapter 9.03 (Residential Districts) of Title 9 (Planning and Zoning) is hereby added to Chapter 9.03 (Residential Districts) as set forth in Exhibit D.

Section 7. ADDING SECTION 9.03.070 (9.03.080 STREAMLINED MINISTERIAL APPROVAL PROCESS (SENATE BILLS 330 AND 8) TO CHAPTER 9.03 (RESIDENTIAL DISTRICTS)

Section 9.03.080 (Streamlined Ministerial Approval Process (Senate Bills 330 and 8)) of Chapter 9.03 (Residential Districts) of Title 9 (Planning and Zoning) is hereby added to Chapter 9.03 (Residential Districts) as set forth in Exhibit E.

Section 8. AMENDMENT TO SECTION 9.05.040 (INDUSTRIAL SITE DEVELOPMENT STANDARDS)

Section 9.05.040 (Industrial Site Development Standards) of Chapter 9.05 (Industrial Districts) of Title 9 (Planning and Zoning) is hereby amended as set forth in Exhibit F.

Section 9. AMENDMENT TO SECTION 9.14.100 (LAND DIVISION DEDICATIONS, IMPROVEMENTS, FEES AND RESERVATIONS)

Section 9.14.100 (Land Division Dedications, Improvements, Fees and Reservations) of Chapter 9.14 (Land Divisions) of Title 9 (Planning and Zoning) is hereby amended as set forth in Exhibit G.

Section 10. AMENDMENT TO SECTION 9.16.170 (APPLICATIONS FOR HILLSIDE DEVELOPMENT PERMIT)

Section 9.16.170 (Applications for Hillside Development Permit) of Chapter 9.16 (Design Guidelines) of Title 9 (Planning and Zoning) is hereby amended as set forth in Exhibit H.

Section 11. CEQA COMPLIANCE

That PEN23-0125 Amendments are exempt from the California Environmental Quality Act in accordance with Section 15061(b)(3) of the CEQA Guidelines in that the amendments involve general policy and procedure making, and it can be seen with certainty that there is no possibility that the amendments will have a significant effect on the environment.

Section 12. FINDINGS

The ordinance is consistent with the City's 2040 General Plan.

Section 13. SEVERABILITY

That the City Council declares that, should any provision, section, paragraph, sentence or word of this Ordinance be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this ordinance as hereby adopted shall remain in full force and effect.

Section 14. REPEAL OF CONFLICTING PROVISIONS

That all the provisions of the Municipal Code as heretofore adopted by the City of Moreno Valley that are in conflict with the provisions of this Ordinance are hereby repealed.

Section 15. EFFECTIVE DATE

That this Ordinance shall take effect thirty (30) days after its second reading.

Section 16. CERTIFICATION

That the City Clerk shall certify to the passage and adoption of this Ordinance, enter the same in the book for original ordinances of the City, and make a minute of passage and adoption thereof in the records of the proceedings of the City Council, in the minutes of the meeting at which this Ordinance is passed and adopted.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

INTRODUCED at a regular meeting of the City Council on ____ , ____ , and PASSED, APPROVED, and ADOPTED by the City Council on _____ __, __, by the following vote:

Ulises Cabrera, Mayor
City of Moreno Valley

ATTEST:

Jane Halstead, City Clerk

APPROVED AS TO FORM:

Steven B. Quintanilla, Interim City Attorney

Attachment: Ordinance XXXX [Revision 1] (6454 : 2023 Winter Omnibus)

ORDINANCE JURAT

STATE OF CALIFORNIA)

COUNTY OF RIVERSIDE)

ss. CITY OF MORENO VALLEY

)

I, _____, City Clerk of the City of Moreno Valley, California, do hereby certify that Ordinance No. 2023 - XX was duly and regularly adopted by the City Council of the City of Moreno Valley at a regular meeting thereof held on the _____ day of _____, 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

(Council Members, Mayor Pro Tem and

Mayor)

CITY CLERK

(SEAL)

Attachment: Ordinance XXXX [Revision 1] (6454 : 2023 Winter Omnibus)

Permitted Uses Table 9.02.020-1

- X - Indicates stated use is permitted subject to district requirements.
- C - Indicates stated use is allowed with a conditional use permit.
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- A - Indicates a use is permitted with an adult business use permit, providing the requirements of Section 9.09.030 of this title are met.
- S - Indicates a use is permitted, providing the requirements of 9.09.280 (Smoke Shops) of this title are met. A conditional use permit is required if dictated by the distance criteria.
- M - Indicates a use is allowed with a conditional use permit, providing the requirements of 9.09.290 (Commercial Cannabis Activities) of this title are met.

	Residential Zones												Mixed Use Overlay			Commercial & Office Zones						Industrial Zones					
	HR	RR	R1	RA2	R2	R3	R5	RS10	R10	R15	R20	R30	MUN ^(9,11)	MUC ^(9,11)	MUJ ^(8,10,11)	NC	CC	VC	OC	O	P	I	LI	BP	BPX	OS	
Adult Businesses																	A		A	A	A	A					
Agricultural Uses—Crops Only ¹⁸	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Agricultural (involving structures)																						X					
Aircraft Landing Facilities (including helipads and facilities for quadcopters) ¹⁸																	C		C	C	C	C	C	C	C	C	
Ambulance Service																	◆					◆	X	X	X	X	
Amusement Parks, Fairgrounds ¹⁸																	◆						X				
Animal Raising (see Section 9.09.090 of this title) ¹⁸	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Appliance and Electronic Repair Shops													X	X	X	X	X					X	X			X	
Arcades, Video Machines																◆	X	◆									
Athletic Clubs, Gymnasiums and Spas ¹⁸													X	X	X	X	X		X			X	X	X	X	X	
Auction Houses ¹⁸																	X									X	
Auditoriums ¹⁸													◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Auto Electronic Accessories and Installation																	X					X	X			X	
Automobile Fleet Storage																						X	X				
Automobile, Motorcycle, Truck, Golf Cart, Recreational Vehicle and Boat Sales and Incidental Minor Repairs and Accessory Installations																	◆					X	X				
Auto Service Stations																	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Accessory uses include convenience store and car wash Minor repairs to include auto/boat/motorcycle/RV (excludes major repair, paint, body work)																	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Automotive, Boat, Motorcycle and RV Repair—Minor (includes brake, muffler and tire installation and repair)																	◆	X				X	X			X	
Automotive Paint and Body Repair—Major Engine Overhaul																	◆					X					
Auto Rentals																		X						X	X	X	
Auto Supply Stores													X	X	X	X	X					X	X			X	
Bakery Shops													X	X	X	X	X	X								X	
Bakery—Commercial ¹⁸																						X					
Banks—Financial Institutions ¹⁸													X	X	X	X	X	X	X	X				X	X		
Barber and Beauty Colleges ¹⁸													X	X	X	X	X		X	X				X	X		
Bars (Drinking Establishments) ¹⁸																											
Bars													C	C	C	C	C	C									
Bars, with Limited Live Entertainment													C	C	C	C	C	C									

Attachment: Ordinance XXXX [Revision 1] (6454 : 2023 Winter Omnibus)

Exhibit A

Permitted Uses Table 9.02.020-1

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- M - Indicates a use is allowed with a conditional use permit, providing the requirements of 9.09.290 (Commercial Cannabis Activities) of this title are met.

	Residential Zones												Mixed Use Overlay			Commercial & Office Zones					Industrial Zones						
	HR	RR	R1	RA2	R2	R3	R5	RS10	R10	R15	R20	R30	MUN ^(9,11)	MUC ^(9,11)	MUJ ^(8,10,11)	NC	CC	VC	OC	O	P	I	LI	BP	BPX	OS	
Boat Sales New and Used Including Repairs and Accessory Installation																	◆						X				
Boarding and Rooming Houses ¹⁸									X	X	X	X	X	X													
Bowling Alley													◆	◆	◆	X	X										
Building Material Sales ¹⁸																	◆										
With outdoor storage ¹⁸																	◆						X	X			
Building Material Storage Yards ¹⁸																							X				
Bus, Rail and Taxi Stations ¹⁸																	◆										
Business Equipment Sales (includes repairs)													X	X	X	X	X	X	X								X
Business Schools ¹⁸													X	X	X	X	X	X	X	X				X	X	X	
Business Supply Stores													X	X	X	X	X		X				X	X		X	
Cabinet Shop																							X	X	X	X	
Caretakers Residence ¹																	◆	◆	C	◆	◆	◆	◆	◆	◆	◆	
Car Wash																	X	X					X				
Accessory to auto related use																	◆	◆					X				
Catering Service													X	X	X	X	X	X							X	X	
Cemetery (Human or Pet) With or Without Accessory Mortuary and Cremation Services (Minimum 10-acre site required)	C	C	C	C	C	C	C	C	C	C	C	C															
Churches ^{2, 18}	C	C	C	C	C	C	C	C	C	C	C	C	◆	◆	◆	◆	◆	C	◆	◆	◆	◆	◆	◆	◆	◆	
Clubs ¹⁸									◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆					C
Commercial Cannabis Activities ^{17, 18}																											
Cultivation																											
Dispensary																	M	M							M	M	M
Manufacturing																								M	M	M	
Testing																								M	M	M	
Microbusiness																		M								M	
Distribution Center																	M	M						M	M	M	
Commercial Radio or Television Stations																											
With on-site antenna																		◆					◆	◆	◆	◆	
Without on-site antenna																		X					X	X	X	X	
Communications Facilities (See Section 9.09.040 of this title)																											
Computer Sales and Repairs													X	X	X	X	X		X				X	X	X	X	
Contractors Storage Yard													X	X	X								X				

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	Residential Zones												Mixed Use Overlay			Commercial & Office Zones						Industrial Zones					
	HR	RR	R1	RA2	R2	R3	C R5	C RS10	C R10	C R15	C R20	C R30	MUN ^(9,11)	MUC ^(9,11)	MUJ ^(8,10,11)	NC	CC	VC	OC	O	P	I	LI	BP	BPX	OS	
Convalescent Homes/Assisted Living ¹⁸													◆	◆	◆	◆	◆	◆	◆	◆	◆						
Convenience Stores																											
With drive-through																	X	X									
Without drive-through																	X	X									
With alcohol sales																	◆	◆									
Convention Hall, Trade Show, Exhibit Building with Incidental Food Services ¹⁸															C		◆		◆		◆			◆	◆		
Copy Shops													X	X	X	X	X	X	X	X			X	X	X	X	
Country Club ¹⁸	C	C	C	C	C	C	C	C	C	C	C																
Dancing, Art, Music and Similar Schools ¹⁸													X	X	X	X	X	X	X	X			X	X	X		
Day Care Centers ^{18, 19}	X	X	X	X	X	X	X	X	X	X	X	X	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	C
Delicatessens ¹⁸													X	X	X	X	X	X					X	X	X		
Diaper Supply Service																							X				
Laundry with fleet storage ¹⁸																							X				
Disposal company																							X				
Drapery Shops													X	X	X	X	X	X									
Dressmaking Shops													X	X	X	X	X	X									
Driving School ¹⁸													X	X	X	X	X		X	X			X	X	X		
Drug Stores													X	X	X	X	X	X									
Dry Cleaning or Laundry ¹⁸																											
a. Dry Cleaning													X	X	X	X	X	X	X								X
b. Laundromat													X	X	X	X	X	X	X								
c. Laundry Commercial																						X	X				
Emergency Shelters ¹⁴													X	X	X		C		C	C	X		C			C	
Employee Housing ¹⁸										X	X	X															
Equestrian Centers, Riding Academies, Commercial Stables (including incidental sales of feed and tack) ¹⁸	C	C	C	C													◆									C	
Exterminators																	C						X	X	X	X	
Feed and Grain Stores																	X	X	X								
Fire and Police Stations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Floor Covering Stores (may include incidental repairs with installation service)													X	X	X	X	X						X				
Fraternity/Sorority ¹⁸									C	C	C	C															
Frozen Food Locker																							X	X			

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Permitted Uses Table 9.02.020-1

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	Residential Zones												Mixed Use Overlay			Commercial & Office Zones						Industrial Zones					
	HR	RR	R1	RA2	R2	R3	R5	RS10	R10	R15	R20	R30	MUN ^(9,11)	MUC ^(9,11)	MUJ ^(8,10,11)	NC	CC	VC	OC	O	P	I	LI	BP	BPX	OS	
Gasoline Dispensing - Non-retail accessory to an auto-related use ¹⁸																	X						X	X	X	X	
Glass Shops and Glass Studios—Stained, etc.																	X	X					X	X			
Golf Courses or Golf Driving Ranges with Incidental Commercial Uses ¹⁸	C	C	C	C	C	C	C	C	C	C	C	C														◆	
Handicapped Housing ¹⁸									X	X	X	X	X	X	X												
Heavy Equipment Sales and Rentals																	X						X	X			
Hospitals ¹⁸																	◆		◆	◆					C	C	C
Hotels ¹⁸																											
a. With 20% or less of the units containing kitchens													X	X	X		X		C				X	X	X		
b. With over 20% of the units containing kitchens													C	C	C		C		C				C	C	C		
Ice Cream Stores—Including Yogurt Sales													X	X	X	X	X	X	X							X	
Impound Yards																						X					
Jewelry Stores													X	X	X	X	X	X									
Kennel and Catteries	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		◆	◆	◆	◆	C				
Laboratories (medical and dental) ¹⁸													X	X	X	X	X		X	X		X	X	X	X		
Libraries ¹⁸	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	
Liquor Stores													◆	◆		◆	◆										
Live/Work Unit ^{12, 18}													X	X	X												
Locksmith Shops													X	X	X	X	X	X				X	X	X	X		
Lodge Halls and Similar Facilities ¹⁸													◆	◆	◆	◆	◆		◆					◆	◆		
Low Barrier Navigation Centers ¹⁸													X	X	X		X		X	X	X					X	
Lumberyards																	X					X					
Mail Order House																	X					X	X	X	X		
Manufacturing and Assembly ¹⁸																											
a. Custom and light manufacturing indoor uses only (50,000 square feet or less), with light truck traffic, on-site and wholesaling of goods produced																						X	X	X	X		
b. Custom and light manufacturing indoor uses only (more than 50,000 square feet), with light truck traffic, on-site and wholesaling of goods produced																						X	X				
c. General manufacturing with frequent truck traffic and/or outdoor equipment or storage																						X	X				
d. Retail sales of goods produced or warehoused on-site ³																						X	X	X	X		

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Exhibit A

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Medical Clinics/Medical Care ¹⁸																										
Inpatient care													X	X	X	X	X		X	X		X	X	X	X	
Urgent care													X	X	X	X	X		X	X						
Medical device services and sales (retail), including, but not limited to, fittings for and sale of prosthetic and orthotic devices															X	X		X								
Medical equipment supply, including retail sales for in-home medical care, such as wheelchairs, walkers, and respiratory equipment															X	X		X								
Mobile Home Parks ¹⁸	C	C	C	C	C	C	C	C	C	C	C															
Mobile Home Sales or Rentals (outdoor display)																	C									
Mortuaries																										
With cremation services																								X	X	
No cremation services			C	C	C	C	C	C	C	C	C				◆	◆	◆						X	X		
Museums ¹⁸	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Newspaper and Printing Shops													X	X	X	X	X					X	X	X	X	
Nightclubs ¹⁸														C	C		C									
Nursery, (Plant), Wholesale and Distribution	X	X	X	X																		X	X			X
Offices (administrative and professional) ¹⁸													X	X	X	X	X	X	X	X			X	X	X	
Open Air Theaters ¹⁸															C						C					C
Orphanages ¹⁸	C	C	C	C	C	C	C	C	C	C	C															
Painting Contractor																							X	X		
Parcel Delivery Terminals ¹⁸																						X	X	X	X	
Parking Lot															C	C	X	X	C					X		
Parks and Recreation Facilities (public) ¹⁸	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Personal Services (e.g., nail salons, spa facilities ¹⁵ , barber and beauty shops, and tattoo parlors) ¹⁸													X	X	X	X	X	X	X						X	
Pharmacy ⁴													X	X	X	X	X	X	X							X
Photo Studios													X	X	X	X	X	X	X							X
Plumbing Shops																	X									X
Plumbing Supply Stores for Contractors																							X	X	X	
Pool Hall ¹⁸															◆	◆	◆									
Postal Services													X	X	X	X	X	X	X				X	X	X	
Pottery Sales with Outdoor Sales													X	X	X	X	X	X				X			X	

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Public Administration, Buildings and Civic Centers ¹⁸													X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Public Utility Stations, Yards, Wells and Similar Facilities, Excluding Offices ¹⁸	C	C	C	C	C	C	C	C	C	C	C	C	◆	◆	◆	◆	◆	◆	◆	◆	◆	X	X	◆	◆	C	
Racetracks ¹⁸																	C				C						
Record Store													X	X	X	X	X	X									
Recording Studio													X	X	X	X	X	X	X	X		X	X	X	X		
Recreational Facilities (Private) such as Tennis Club, Polo Club, with Limited Associated Incidental Uses ¹⁸	C	C	C	C	C	C	C	C	C	C	C	C	◆	◆	◆	◆	◆	◆									
Recycling, Large Collection Facility ⁵																◆						X	X				
Recycling, Small Collection Facility													X	X	X	X	X	X				X	X	X	X		
Recycling Processing Centers													X	X	X	X	X	X	X	X		X	X	X	X		
Refreshment Stands													X	X	X	X	X	X	X	X	X	X	X	X	X		
Rental Service													X	X	X							X	X	X	X		
Within an enclosed structure (furniture, office, party supplies)													X	X	X	X	X					X	X	X	X		
With outdoor storage and display (vehicles, equipment, etc.)																◆	◆					X	X				
Research and Development ¹⁸													X	X	X				X	X		X	X	X	X		
Residential ¹⁸																											
Single-Family	X	X	X	X	X	X	X	X	X	X	X	X															
Multiple-Family									X	X	X	X	X	X	X												
Affordable Housing in Commercial Zones ²⁰													X	X	X	X	X	X	X								
Manufactured home park (see mobile home parks)																											
Residential Care Facility																											
for six (6) or less persons ¹⁸	X	X	X	X	X	X	X	X	X	X	X	X															
for seven or more persons ¹⁸	C	C	C	C	C	C	C	C	C	C	C	C	C	C	X												
Restaurants (Eating and Drinking Establishments) ¹⁸																											
Without entertainment													X	X	X	X	X	X	X						X		
With Limited Live entertainment													X	X	X	X	X	X	X								
With alcoholic beverage sales													X	X	X	X	X	X	X						X		
With outdoor seating ¹³													X	X	X	X	X	X	X						X		
Restaurants (fast-food) ¹⁸																											
With drive-through																◆	◆								◆		
Without drive-through													X	X	X	X	X								X		
Retails Sales													X	X	X	X	X	X									
Support Retail Sales													X	X	X				X						X		

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Sandwich Shops ⁶													X	X	X	X	X	X	X	X ⁶						
Schools, Private	C	C	C	C	C	C	C	C	C	C	C	C	◆	◆	◆	◆	◆		◆	◆				◆	◆	
Senior Housing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X						
Shoe Shine Stands													X	X	X	X	X			X	X			X	X	
Shoe Repair Shop													X	X	X	X	X	X								
Sign Shop													X	X	X	X	X	X				X	X	X	X	
Single room occupancy (SRO) facility ¹⁸												C	C	C	C		X									
Skating Rinks ¹⁸														X			X									
Smoke Shops ¹⁶																S	S	S	S							
Stationery Stores													X	X	X	X	X	X	X					X	X	
Statue Shop -Outdoor display																	◆					X	X			
Storage Lots and Mini-Warehouses																										
Indoor																	C					X				
Outdoor																	C					X				
Supportive and Transitional Housing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X						
Swim Schools/Center with Incidental Commercial Uses ¹⁸	C	C	C	C	C	C	C	C	C	C	C	C					X									
Taxidermist																	X					X	X			
Theaters (excludes open air) ¹⁸													X	X	X	X	X	X								
Tire Recapping																						X				
Trade and Vocational Schools ¹⁸													X	X	X		X		X	X			X	X	X	
Transfer, Moving and Storage Facilities																						X	X			
Truck Charging Facilities																	C					X	X			
Truck Wash																						X	X			
Upholstery Shops																	X					X	X		X	
Vehicle Storage Yards																										
Indoor																	X					X	X			
Outdoor																	C					X	X			
Vending Machine Service and Repair																						X	X	X	X	
Veterinarian (including animal hospital) ¹⁸																										
All activities within an enclosed structure													X	X	X	X	X							X	X	
With outdoor activities																	◆							◆	◆	
Weight Reduction Center													X	X	X	X	X	X	X							
Wholesale, Storage, and Distribution ¹⁸																										
All activities indoors (50,000 square feet or less)																						X	X	X	X	

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Permitted Uses Table 9.02.020-1

X - Indicates stated use is permitted subject to district requirements.
 C - Indicates stated use is allowed with a conditional use permit.
 ♦ - Indicates a use is permitted unless the use is located three hundred (300) feet or less from a residential zone or use, in which case the use is allowed with a conditional use permit. However, the expansion of an existing general manufacturing use is allowed without a conditional use permit regardless of its distance from residential zones or residential uses.
 A - Indicates a use is permitted with an adult business use permit, providing the requirements of Section 9.09.030 of this title are met.
 S - Indicates a use is permitted, providing the requirements of 9.09.280 (Smoke Shops) of this title are met. A conditional use permit is required if dictated by the distance criteria.
 M - Indicates a use is allowed with a conditional use permit, providing the requirements of 9.09.290 (Commercial Cannabis Activities) of this title are met.

	Residential Zones											Mixed Use Overlay			Commercial & Office Zones					Industrial Zones						
	HR	RR	R1	RA2	R2	R3	R5	RS10	R10	R15	R20	R30	MUN ^(9,11)	MUC ^(9,11)	MUI ^(8,10,11)	NC	CC	VC	OC	O	P	I	LI	BP	BPX	OS
All activities indoors (more than 50,000 square feet)																						X	X			
All activities outdoors																						X				
Retail sale of goods warehoused on-site ⁷																						X	X	X		
Wrecking Yard																						♦				

- Notes:
- Do not consider residential use per distance requirement.
 - The administrative plot plan process may be used to establish these uses in an existing building within any commercial or industrial zone, even if the project is located adjacent to residential uses or zones.
 - Retail is limited to fifteen (15) percent of gross floor area (see Section 9.05.040 of this title).
 - Permitted in the OC and VOR districts only as a support medical office facility.
 - Large collection facilities may be established within an existing building through the “tenant improvement” process if such building or tenant space occupied by the use is not located adjacent to a residential use or zone.
 - Sandwich shops shall not have cooking hoods, nor shall they exceed five percent of the gross floor area of the complex where they are located.
 - Retail is limited to fifteen (15) percent of gross floor area (see Section 9.05.040 of this title).
 - In the MUI district, mixed use (commercial uses on first floor with office uses or residential uses on upper floors) are (a) required to on lots at street intersections and within 300 feet in any direction from a street intersection, as measured from the corner formed by the lot’s property lines, and (b) are allowed, but not required on the other lots.
 - In the MUC and MUN districts, mixed use (commercial uses on first floor with office uses or residential uses on upper floors) are (a) required to on lots at street intersections and within 150 feet in any direction from a street intersection, as measured from the corner formed by the lot’s property lines, and (b) are allowed, but not required on the other lots.
 - See Section 9.07.40 (Medical Use Overlay District)
 - See Section 9.09.260 (Mixed Use Development)
 - See Section 9.09.250 (Live-Work Development)
 - See Section 9.09.270 (Outdoor Dining)
 - Use is also permitted in the Moreno Valley Industrial Area Plan (SP 208)
 - For Spa Facilities refer to Title 11, Chapter 11.96 of the Municipal Code.
 - See Section 9.09.280.C (Smoke Shops) for distance requirements that require a Conditional Use Permit.
 - See Section 9.09.290 (Commercial Cannabis Activities) for all Commercial Cannabis Activities regulations.
 - See Section 9.07.060 Airport Land Use Compatibility Plan for Airport Land Use Compatibility Plan (ALUCP) requirements for actions proposed on property located within an Airport Compatibility Zone. When located within an Airport Land Use Compatibility Zone, greater land use, restrictions for airport compatibility may apply per the applicable ALUCP.
 - For Day Care uses in the Moreno Valley Industrial Area Plan (SP 208), See Section 9.07.060 Airport Land Use Compatibility Plan for Airport Land Use Compatibility Plan (ALUCP) requirements for actions proposed on property located within an Airport Compatibility Zone. When located within an Airport Land Use Compatibility Zone, greater land use, restrictions for airport compatibility may apply per the applicable ALUCP.
 - See Section 9.04.050 (Affordable Housing in Commercial Zones)

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Exhibit A

(21) See Section 9.09.320. 9.09.320 Low barrier navigation centers.

Zoning District Key			
HR	Hillside Residential District	MU	Mixed Use Overlay District
RR	Rural Residential District	MUN	Mixed-Use Neighborhood Overlay District
R1	Residential 1 District (40,000 square feet minimum lot size)	MUC	Mixed-Use Community Overlay District
RA2	Residential Agriculture 2 (20,000 square feet minimum lot size)	MUI	Mixed-Use Institutional Anchor Overlay District
R2	Residential 2 District (20,000 square feet minimum lot size)	NC	Neighborhood Commercial District
R3	Residential 3 District (10,000 square feet minimum lot size)	CC	Community Commercial District
R5	Residential 5 District (7,200 square feet minimum lot size)	VC	Village Commercial District
RS10	Residential Single-Family 10 District (4,500 square feet minimum lot size)	OC	Office Commercial District
R10	Residential 10 District (Up to 10 Dwelling Units per net acre)	O	Office District
R15	Residential 15 District (Up to 15 Dwelling Units per net acre)	P	Public District
R20	Residential 20 District (Up to 20 Dwelling Units per net acre)	I	Industrial District
R30	Residential 30 District (Up to 30 Dwelling Units per net acre)	LI	Light Industrial
		BP	Business Park District
		BPX	Business Park-Mixed Use District
		OS	Open Space District

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9.03.040 Residential site development standards.

The following standards shall apply to land and permitted or conditionally permitted buildings and structures located within the herein described residential districts. The standards stated herein are not intended to prevent more restrictive private site development standards contained in the covenants, conditions and restrictions or other private consensual restrictions imposed on any property or dwelling unit. However, in no case shall private deed or other property restrictions be applied or recognized so as to permit a lesser standard than the minimum standards established in this title or to otherwise revise the standards established by this title.

A. Rural Residential Requirements.

1. Slope-Density-Natural Area Relationship. The maximum density (du/ac) and the minimum percent of a site to remain in a natural state shall be determined by a slope analysis applied to the Slope-Density-Natural Area Table, as defined below.

- a. Slope-Density-Natural Area Table 9.03.040-4.

Slope Class	Allowable Density (DU/Acre)	Amount of Open Space Required
Greater than 25%	0.05 (1 du/20 ac)	60%
15.1% to 25%	0.10 (1 du/10 ac)	50%
10% to 15%	0.20 (1 du/5 ac)	35%
Less than 10%	0.40 (1 du/2.5 ac)	n/a

- b. Slope analysis calculations and mapping shall be provided by the applicant as described under subsection C of this section. The slope analysis shall be certified by a qualified civil engineer or licensed surveyor.
 - c. The total number of dwelling units permitted within a project area shall be the sum of the allowable dwelling units within each slope class. For example, if ten (10) acres of the project falls within the ten (10) to fifteen (15) percent slope class and five acres falls within the fifteen and one-tenth (15.1) percent to twenty-five (25) percent slope class, then the total permitted yield shall be two dwelling units (10 ac x 0.10 du/ac plus 5 ac x 0.20 du/ac).
2. Minimum Lot Size. Minimum lot size shall be one dwelling unit per two and one-half acres within a slope category of ten (10) percent or less unless determined to be reduced by an approved slope analysis. Based on the outcome of a slope analysis, minimum lot size within the rural residential district may be reduced to twenty thousand (20,000) square feet, or the minimum lot size of the adjacent zone, whichever is greater, if clustered on slopes of less than ten (10) percent and the lots are part of a project that preserves the steeper slope classes as natural open space by dedication to an appropriate governmental entity, open space easement, transfer of development rights or other means approved by the city. The ongoing maintenance of such open space areas shall be ensured through a mechanism approved by the city.
3. Subdivision Design and Future Land Divisions.

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- a. Subdivisions shall be compatible with the surrounding development pattern. A subdivision shall be considered compatible if the lots created along the outside boundary of the project are no smaller than the average lot size within three hundred (300) feet of the project boundary. Parcels greater than five acres in area shall be excluded from the calculations when determining the average lot size within three hundred (300) feet of the project boundary.
- b. Subdivisions shall be designed in such a way as to transfer development density to the lower slope classes and preserve the steeper slopes for very low density and/or open space. Subdivisions created in this way are prohibited from further division so as not to circumvent the density transfer and the purpose of the district. This restriction shall be binding on the subdivider and subsequent land owners. Therefore, this restriction shall be secured by development agreement or other type of recorded deed restriction approved by the city.
- 4. Building Height. Dwellings and other accessory structures shall not exceed thirty (30) feet in overall height, provided that on slopes of less than ten (10) percent, the overall height shall not exceed thirty-five (35) feet.
- 5. Setbacks and Other Site Development Criteria. Front, side and rear setbacks and other site development standards not specifically referenced in this section shall be subject to the following standards:

Lot Size	Standards
Under 40,000 s.f.	R2 district standards
40,000 s.f. or greater	R1 district standards

- 6. Grading within the rural residential district shall be performed as described under the hillside residential requirements, subsection (B)(6) of this section.
- B. Hillside Residential Requirements.
 - 1. Slope-Density-Natural Area Relationship. The maximum density (du/ac) and the percent of a site to remain in a natural state shall be determined by a slope analysis applied to the Slope-Density-Natural Area Table, as defined below.
 - a. Slope-Density-Natural Area Table 9.03.040-5.

Slope Class	Allowable Density (DU/Acre)	Minimum Amount of Open Space Required
Greater than 25%	0.10 (1 du/10 ac)	60%
15.1% to 25%	0.25 (1 du/4 ac)	50%
10% to 15%	0.50 (1 du/2 ac)	35%
Less than 10%	1.00 (1 du/ac)	n/a

- b. Slope analysis calculations and mapping shall be provided by the applicant as described under subsection C of this section. The community development director may require the slope analysis to be certified by a qualified civil engineer or licensed surveyor.

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- c. The total number of dwelling units permitted within a project area shall be the sum of the allowable dwelling units within each slope class. For example, if ten (10) acres of the project falls within the fifteen and one-tenth (15.1) percent to twenty-five (25) percent slope class and five acres falls within the greater than twenty-five (25) percent slope class, then the total permitted yield shall be three dwelling units (10 ac x 0.25 du/ac plus 5 ac x 0.10 du/ac).
- 2. **Minimum Lot Size.** Minimum lot size shall be one acre within a slope category of ten (10) percent or less unless determined to be reduced by an approved slope analysis. Based on the outcome of a slope analysis, the lot size within the hillside residential district may be reduced to ten thousand (10,000) square feet or the minimum lot size of the adjacent zone, whichever is greater, if clustered on slopes of less than ten (10) percent and the lots are part of a project that preserves the steeper slope classes as natural open space by dedication to an appropriate governmental entity, open space easement, transfer of development rights or other means approved by the city. The ongoing maintenance of such open space areas shall be ensured through a mechanism approved by the city.
- 3. **Subdivision Design and Future Land Divisions.**
 - a. Subdivisions shall be compatible with the surrounding development pattern. A subdivision shall be considered compatible if the lots created along the outside boundary of the project are no smaller than the average lot size within three hundred (300) feet of the project boundary. Parcels greater than five acres in area shall be excluded from the calculations when determining the average lot size within three hundred (300) feet of the project boundary.
 - b. Subdivisions shall be designed in such a way as to transfer development density to the lower slope classes and preserve the steeper slopes for very low density and/or open space. Subdivisions created in this way are prohibited from further division so as not to circumvent the density transfer and the purpose of the district. This restriction shall be binding on the subdivider and subsequent land owners. Therefore, this restriction shall be secured by development agreement or other type of recorded deed restriction approved by the city.
- 4. **Building Height.** Dwellings and other accessory structures shall not exceed thirty (30) feet in overall height, provided that on slopes of less than ten (10) percent, the overall height shall not exceed thirty-five (35) feet.
- 5. **Setbacks and Other Site Development Criteria.** Front, side and rear setbacks and other site development standards not specifically referenced in this section shall be subject to the following standards:

Lot Size	Standards
Less than 20,000 s.f.	R-3 district standards
20,000 s.f. to 40,000 s.f.	R-2 district standards
40,000 s.f. or greater	R-1 district standards

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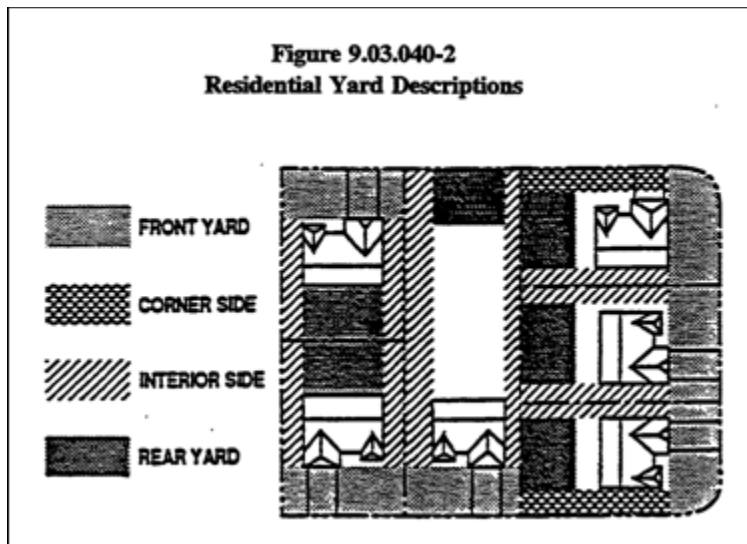
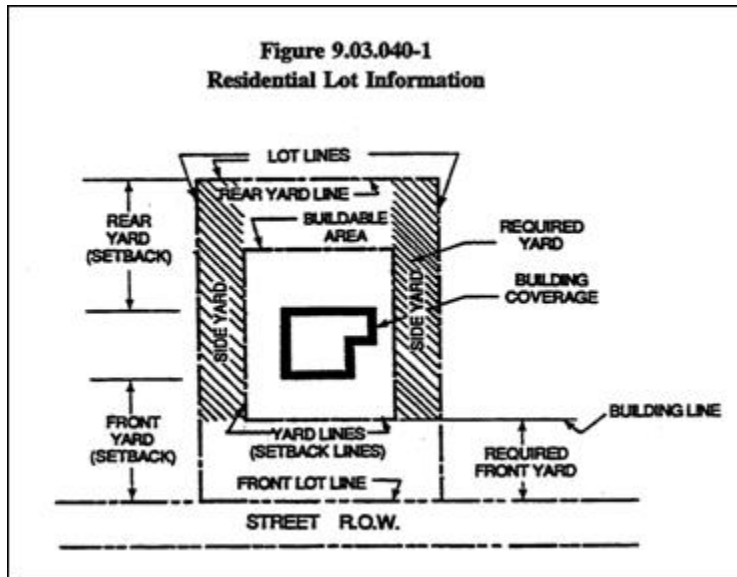
- 6. Grading of any site shall be minimized and shall conform to the provisions contained in the city of Moreno Valley design guidelines, Ch. 9.16, under applications for hillside development, Article IV, Sections 9.16.170 through 9.16.235 of this title, and the following standards:

Slope Class	Standards
15.1—25%	Padded building sites may be allowed, but maximum use of custom foundations and split level designs shall be employed to reduce the need for large, padded building areas.
Above 25%	Mass grading is not permitted. Special hillside architectural and design techniques are expected in order to conform to the natural landform. Homes constructed on lots within this terrain shall use custom, multiple-level foundations.
For all areas	All graded areas shall be protected from wind and water erosion through acceptable slope stabilization methods such as planting, walls or jute netting.

- C. Slope Calculations. For the purposes of this section, the following method will be used to determine slope.
 - 1. "Slope" is defined as the relationship between the change in elevation (rise) of the land and the horizontal distance (run) over which that change in elevation occurs. The percent of any given slope is determined by dividing the rise by the run on the natural slope of land, multiplied by one hundred (100).
 - 2.
 - a. For the purpose of determining the amount and location of land falling into each slope category, the applicant shall submit to the community development department, at the time of application, a base topographic map of the subject site prepared and signed by a registered civil engineer or licensed land surveyor. Such a map shall have a scale of not less than one inch to two hundred (200) feet and a contour interval of not more than ten (10) feet.
 - b. This base topographic map shall include all adjoining properties within three hundred (300) feet of the site boundaries. Slope bands in the range of less than ten (10) percent, ten (10) to fifteen (15) percent, fifteen (15) to twenty-five (25) percent, and greater than twenty-five (25) percent shall be delineated on the topographic map. The map shall be accompanied by a tabulation of the land area in each slope category specified in acres. The exact method for computing the percent slope and area by percent slope category is to be sufficiently described and presented so that a review can readily be made.
 - 3. Slope Mapping Method.
 - a. The percent slope of any particular piece of land shall be plotted on the map as described in this subsection.
 - b. In preparing a slope map, those portions of ravines, ridges and terraces of less area generally sloping at twenty-five (25) percent slope or greater, shall be regarded as part of the bordering twenty-five (25) percent slope or greater band.
- D. General Residential Requirements. The following tables sets forth minimum site development standards for residential development projects in the specified

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residential districts. In addition, projects must comply with the special development standards enumerated in this section, the performance standards included in Chapter 9.10 and any other applicable city ordinances, policies and standards.



**Table 9.03.040-6
Residential Site Development Standards
Single-Family Standards**

Requirement	R1	R2	RA2	R3	R5	RS10
1. Maximum density (DUs* per net acre)	1	2	2	3	5	10
2. Minimum lot size (sq. ft. net area)	40K**	20K	20K	10K	7,200	4,500
3. Minimum lot width, in feet	150	100	100	90	70	45
Cul-de-sac/knuckle lot frontage	50	50	50	50	50	45
4. Minimum lot depth, in feet	170	120	120	100	100	85
5. Minimum front yard setback	25	25	25	25	20	20
Front-facing garages						10

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Buildings other than front-facing garages						10
6. Minimum side yard setback, in feet***						
a. Interior side yard	See Note 1	See Note 1	See Note 1	See Note 1	See Note 2	See Note 3
b. Street side yard	20	20	20	15	15	10
7. Minimum rear yard setback, in feet***	40	35	35	30	15	15
8. Maximum lot coverage	25%	30%	30%	40%	40%	50%
9. Maximum building and structure height, in feet	Two stories not to exceed 35 feet.					
10. Minimum dwelling size (sq. ft.)	1500	1500	1500	1250	1250	1000
11. Minimum distance between buildings, in feet (including main DUs and accessory structures)	20	15	15	10	10	10
12. Floor area ratio						
a. One-story home	0.25	0.30	0.30	0.40	0.40	0.50
b. Multi-story home	0.50	0.60	0.60	0.70	0.70	0.75

* The term "DUs" means dwelling units.

** The term "K" means thousands.

*** See Section 9.08.030 regarding accessory structures and room additions.

Notes to Residential Site Development Standards Table 9.03.040-6.

1. Combined interior side yard setbacks of twenty (20) feet shall be provided with a minimum of five feet on one side.
2. Combined interior side yard setbacks of fifteen (15) feet shall be provided with a minimum of five feet on one side.
3. In the RS10 district the minimum street side setback shall be ten (10) feet. The interior side setback shall be five feet, except in the case of zero lot line developments with houses placed on an interior side lot line. When a house is placed on an interior side lot line, the other minimum side yard setback shall be ten (10) feet. Where applicable, an easement at least five feet in width shall be provided along the common lot line. The easement shall guarantee the right to use and occupy the easement for a roof overhang(s), stormwater drainage and for building maintenance and repair.
4. The minimum front yard setback from private streets within the R1, R2 and R3 districts shall be fifty-five (55) feet measured from the center line of the street. The minimum front yard setback from private streets within the R5 district shall be fifty (50) feet measured from the center line of said street.

**Table 9.03.040-7
Residential Site Development Standards
Multifamily Standards**

Requirement	R10	R15	R20	R30
1. Maximum density (DUs*/net acre)	10	15	20	30
2. Minimum lot size (net area in sq. ft.)**	1 acre	1 acre	1 acre	1 acre
3. Minimum lot width in ft.	200	200	200	200
4. Minimum lot depth in ft.	175	175	175	175
5. Minimum front yard setback, in ft.	20	25	30	30
6. Minimum side yard setback, in ft.				
Interior side yard	10	10	10	10 ft. plus 2 ft. for every 5 ft. in height over 30 ft.
Street side yard	20	20	20	20
7. Minimum rear yard setback, in ft.	15	20	25	10 ft. plus 2 ft. for every 5 ft. in height over 30 ft.
8. Maximum lot coverage	40%	45%	50%	50%
9. Maximum building and structure height, in ft.	50 feet			
10. Minimum dwelling size (sq. ft.)	See Note 1			

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11. Minimum distance between buildings, in ft. (including main DUs and accessory structures)	20	20	20	20
12. Floor area ratio	0.75	0.75	0.75	1.0
* The term "DUs" means dwelling units.				
** Minimum lot size only applies to newly subdivided multifamily lots; existing lots can be developed under the multifamily development standards.				

E. Special Single-Family Residential Development Standards.

1. In any residential district, front yard setbacks in subdivision developments may be reduced by twenty (20) percent provided the mean of all such setbacks in the development is not less than the minimum required for the district.
2. In the R2, RA2, R3 and R5 districts, developments of five or more dwelling units shall include front and street side yard landscaping and shall consist predominantly of plant materials, except for necessary walks, drives and fences.
3. In the RS10 district, driveways and fire hydrants shall be designed and located to maximize on-street parking opportunities in front of each residence.
4. Within the RS10 district, small lot single-family subdivisions on less than fifteen (15) gross acres shall provide landscaping and decorative walls along the street side of corner lots and at least two of the following amenities throughout the project:
 - a. Front porches;
 - b. Automatic garage door openers;
 - c. Electronic security systems.
5. Within the RS10 district, small lot single-family subdivisions on fifteen (15) gross acres or more shall include usable common open space encompassing a minimum of ten (10) percent of each development. Usable common open space does not include individually owned lots, parking areas, nor vehicular rights-of-way. Usable common open space is open space and/or recreational amenities under joint (common) ownership, including, but not necessarily limited to, landscaped areas, trails, playgrounds, tennis courts, swimming pools and recreational buildings. A homeowners' association shall be established to provide continual maintenance of the commonly owned facilities.
6. For all developments within the R5 land use district, a buffer of lots held to the development standards of the R3 land use district shall be included for all portions of a subdivision located adjacent to lower density single-family residential land use districts, including the R1, R2, RA-2, and RR zones.
7. For all single-family residential developments in the R10, R15, R20, and R30 districts a planned unit development application shall be submitted to establish the applicable development standards.
8. In all residential districts, air conditioners, heating, cooling and ventilating equipment and all other mechanical, lighting or electrical devices shall be operated so that noise levels do not exceed sixty (60) dBA (Ldn) at the

property line. Additionally, such equipment, including roof-mounted installation, shall be screened from surrounding properties and streets and shall not be located in the required front yard or street side yard. All equipment shall be installed and operated in accordance with other applicable city ordinances.

F. Special Multiple-Family Residential Development Standards.

1. In the R10, R15, R20 and R30 districts, buildings exceeding one story in height shall maintain a minimum building setback of fifty (50) feet from any single-family district. Any single-story building within the R10, R15, R20 or R30 district shall maintain a minimum setback of twenty (20) feet from any single-family district.
2. In any residential district, front yard setbacks in subdivision developments may be reduced by twenty (20) percent provided the mean of all such setbacks in the development is not less than the minimum required for the district.
3. In all residential districts, air conditioners, heating, cooling and ventilating equipment and all other mechanical, lighting or electrical devices shall be operated so that noise levels do not exceed sixty (60) dBA (Ldn) at the property line. Additionally, such equipment, including roof-mounted installation, shall be screened from surrounding properties and streets and shall not be located in the required front yard or street side yard. All equipment shall be installed and operated in accordance with other applicable city ordinances.
4. In the RS10, R10, R15, R20 and R30 districts, developments of five or more dwelling units shall include front and street side yard landscaping and shall consist predominantly of plant materials, except for necessary walks, drives and fences.
5. In the RS10, R10, R15, R20 and R30 districts, a minimum of thirty-five (35) percent of the net site area, exclusive of private patio and yard areas, shall be landscaped. Turf shall not exceed fifty (50) percent of this area. Required setback areas and outdoor recreation areas may be counted toward this minimum. Landscaping shall consist predominately of plant materials to include water efficient native plants, except for necessary walks and fences. Landscape areas shall be designed to promote water retention and allow runoff from impervious surfaces. Hardscape areas are recommended to be constructed with pervious surfaces where feasible to reduce run off.
6. Where a multiple-family project abuts property in a single-family district, a decorative masonry wall at least six feet in height and screening landscaping within a planter of at least five-foot interior width shall be erected and maintained between such uses and the single-family district. Decorative walls composed of block, brick, stone, stucco-treated masonry or concrete panels are acceptable. The community development director may approve alternative materials, provided that the materials are decorative and comparable to masonry walls or concrete panels in durability and ability to attenuate light and sound.

7. Parking for each use shall comply with the requirements of Chapter 9.11 of this title.
8. In the R30 District, Landscape Trees. One tree per twenty (20) linear feet of building dimension for the portions of building visible from parking lot or ROW and one tree per twenty (20) linear feet of perimeter planter areas.
9. In the R30 district, for a development of three acres or greater, up to sixty (60) percent of the units may be in buildings with three or four stories, fifty (50) feet maximum height subject to planning commission approval.

Table 9.03.040-8

Designation	Minimum Density*	Maximum Density
R10	8 units/acre	10 units/acre
R15	12 units/acre	15 units/acre
R20	16 units/acre	20 units/acre
R30	24 units/acre	30 units/acre
* Eighty (80) percent of allowable density must be achieved by all multiple-family residential developments.		

G. General Multiple-Family Guidelines.

1. Opposing garages or carports should be turned to avoid the monotony of alley-like parking corridors.
2. Parking areas should be staggered and landscaped to add visual interest, and opportunities for accent treatments.
3. Parking spaces within multifamily areas shall be located within two hundred fifty (250) feet of the dwellings they serve.
4. Multifamily parking lots shall be limited to two double aisles of cars to help reduce expanses of paving. Parking lots shall provide openings in curbs to convey surface drainage into landscape areas for water quality, retention and absorption.
5. Open parking areas should be clustered and treated as landscaped plazas and courts.
6. Landscaping shall be used around the perimeter of the lot, as well as within the lot, reducing paved area and providing for a more pedestrian oriented site.
7. No more than four units for a two-story structure should be served by one entry.
8. Each multiple-family unit shall have at least one hundred fifty (150) square feet of private open space per downstairs unit and a minimum of one hundred (100) square feet of private open space per upstairs unit. Private open space may consist of a fenced yard area, patio or balcony. Fenced yards and patios shall have a minimum dimension of at least eight feet. Balconies shall be at least five feet deep.
9. Common open space at a minimum of three hundred (300) square feet per each residential dwelling in the project is required.
10. Individual units should have a porch or porch-like space at the front door.
11. Trash enclosures shall be located to provide a maximum walking distance of two hundred fifty (250) feet from the units they serve.

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12. Trash enclosures shall include solid roofs and be designed to be compatible with the project's architecture.
13. Trash enclosures shall not be located on dead end drive aisles, unless adequate turnaround is provided for collection vehicles.
14. There shall be at least one double-bin trash enclosure for every forty-eight (48) residential units.
15. Mail boxes should be located at various places on the site and treated to match the building's architecture, avoiding the institutional and monumental "gang box" appearance, while conforming to post office guidelines.
16. Drive aisles should be curved and should incorporate landscaping and paving treatments to reduce vehicle speed. Landscaping treatments may include pinched planters and a mix of canopy and vertical trees. Paving treatments may include interlocking paver bands or etchings across drives. Speed bumps or Botts' dots are not an acceptable alternative.
17. Freestanding structures, like gazebos or pergolas, should be located to define activity areas at pathway intersections or in secluded landscape areas.
18. Drive aisles shall be at least twenty-four (24) feet wide for two-way traffic and shall be at least twenty (20) feet wide for one-way traffic.
19. Buffer setbacks and landscaping shall be provided along all property lines. Buffers may also be appropriate within the complex, separating recreational areas from units and limiting lines of sight between balconies and into parking areas.
20. Multiple-family projects warrant special design considerations, including:
 - a. Intimate, shaded outdoor seating areas;
 - b. A network of pathways, providing interesting walking experiences;
 - c. Gentle slopes for outdoor pathways and ramps to entry doors and between floors;
 - d. Convenient and attractive access to transit, including porte cocheres, information kiosks, seating areas and water elements;
 - e. Security;
 - f. Direct ambulance access (senior housing projects);
 - g. Parking close to units;
 - h. Elevators (senior housing projects).
21. Multifamily units shall be clustered to minimize grading and to help maintain the natural landscape.
22. Multifamily projects shall be designed for the needs of the intended residents. For example, children's needs would require open space, tot lots, handrails, and enclosed yards on ground floor units. Disabled or elderly needs would require ramps, parking close to units, minimum and gradual elevation changes and elevators.
23. Architectural features should be used to increase privacy from nearby units and common or public spaces.
24. Roof forms should be mixed and combined to vary the perception of building height, to differentiate units and to add interest to building mass. The long, straight roofline of a single gable is not permitted.

25. A diagram of the complex showing the location of the viewer and the building designations shall be positioned at each visitor entrance of a multiple-family development.
26. Buildings shall provide for a variety of colors and architectural features to break up the massing of buildings and provide visual interest.

9.03.055 Density bonus program for green building and energy efficiency.

- A. Purpose and Intent. The purpose of this section is to provide an incentive for residential housing units that are constructed to green building standards that exceed the requirements of the city's building code, which is a greenhouse gas reduction measure included in the city's Energy Efficiency and Climate Action Strategy.
- B. Applicability. Developers of multifamily residential housing dwelling units in the R10, R15, R20, R30, MUN, MUC, MUI, H-OC, COMU, DC, and SP204-Village Residential zone on sites of at least one acre minimum.
- C. Incentive. Developers may request a density bonus of five percent above the calculated number of units for qualified projects.
- D. Energy Efficiency Requirements. A project must meet the applicability requirement in subsection B. For projects that meet the applicability requirement, the developer may request the incentive in subsection C if the project complies with the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) certification criteria for LEED "Certified" level or higher, or an equivalent green building rating system as approved by the community development director. LEED Certified level represents the minimum level of certification under the USGBC Leadership Energy and Environmental Design rating system, and shall be consistent with the USGBC published criteria on the date the project application to the city is deemed complete.
- E. Implementation.
 - 1. The total number of dwelling units allowed under a density bonus shall be calculated by multiplying the maximum density allowed under the applicable zoning designation (i.e., the maximum density listed in Table 9.03.040-6 of this title or the applicable specific plan designation), and multiplying the result by 1.05, for a five percent density bonus. If the result, including the density bonus, contains a fraction of a unit, the number of allowable units shall be determined by rounding down to the nearest whole number if the fraction is below one-half. Calculations containing fractions of one-half or above shall be rounded up.
 - 2. This density bonus shall not be cumulative with any other density bonus program included in this section.
 - 3. The development standards for density bonus projects shall be those of the applicable zoning classification.

9.03.070 Streamlined Ministerial Approval Process (Senate Bill 35)

- A. Purpose and Intent. This section is adopted pursuant to the provisions of Senate Bill 35 (SB 35), to the extent permissible by law, to establish a streamlined ministerial review and public oversight process for the final review and approval of SB 35 applications pursuant to the requirements in California Government Code Section 65913.4. SB 35 has been designed to help address the state's continuing housing crisis.
- B. Applicability. This section establishes clear eligibility criteria to establish a streamlined ministerial review and public oversight process for the Planning Commission's final review and approval of SB 35 applications pursuant to the requirements in California Government Code Section 65913.4.
- C. Qualifying Requirements.
1. A developer may submit an application for a development that is subject to the streamlined, ministerial approval process provided by SB 35 and not subject to a conditional use permit or any other discretionary local government review or approval.
 2. The project must be a multifamily housing development project, as defined in California Government Code Section 65589.5 that contains at least two residential units and complies with the minimum and maximum residential density range permitted for the site per the Land Use and Community Character Element of the MoVal 2040 General Plan, plus any applicable density bonus.
 3. Affordability Requirement. If more than 10 residential units are proposed, at least 10 percent of the project's total units must be dedicated as affordable to households making below 80 percent of the County of Riverside median income. If the project will contain subsidized units, the applicant has recorded, or is required by law to record, a land use restriction for the following minimum durations, as applicable:
 - a. 55 years for rental units.
 - b. 45 years for homeownership units

The development proponent shall commit to record a covenant or restriction dedicating the required minimum percentage of units to below-market housing before issuing the first building permit.
 4. The project must be located on a legal parcel or parcels within the incorporated City limits. At least 75 percent of the site's perimeter must adjoin parcels developed with urban uses.
 5. The project must be located on a site that is either zoned or has a General Plan designation for residential or residential mixed-use development, including sites where residential uses are permitted as conditional use. If the multiple-family housing development is mixed-use, at least two-thirds of the project's square footage must be designated for residential use.
 6. The project must meet all objective zoning and design review standards in effect at the time the application is submitted.

If the project is consistent with the minimum and maximum density range allowed within the General Plan land use designation, it is deemed consistent with housing density standards.

Any density bonus, concessions, incentives, or waivers of development standards or reduction of parking standards requested under Chapter 9.03.050 (Density bonus program for affordable housing) are deemed consistent with objective standards.

7. Prevailing Wages: If the development is not in its entirety a public work, as defined in Government Code Section 65913.4 (a)(8)(A), all construction workers employed in the execution of the development must be paid at least the general prevailing rate of per diem wages for the type of work and geographic area.
8. Skilled and Trained Workforce provisions: A skilled and trained workforce, as defined in Government Code Section 65913.4 (a)(8)(B)iii, must complete the development if the project consists of 50 or more units.
9. The development did not or does not involve a subdivision of a parcel that is subject to the California Subdivision Map Act unless the development either (i) receives a low-income housing tax credit and is subject to the requirement that prevailing wages be paid, or (ii) is subject to the requirements to pay prevailing wages and to use a skilled and trained workforce.
10. The development must be located on a property that is not within a coastal zone, prime farmland, wetlands, a high fire hazard severity zone, hazardous waste site, a delineated earthquake fault zone, a flood plain, a floodway, a community conservation plan area, a habitat for protected species, or under a conservation easement.
11. The project does not demolish any housing units that tenants have occupied in the last 10 years; are subject to any form of rent or price control, or are subject to a recorded covenant, ordinance, or law that restricts rents to levels affordable to persons and families of moderate, low, or very low incomes.
12. The project does not demolish a historic structure that has been placed on a national, state, or local historic register.

D. Application and Processing.

Development projects submitted pursuant to California Government Code Section 65913.4 shall be reviewed in accordance with the procedures set forth in Subsection (b) of Section 65913.4, as such procedures may be amended from time to time and as further outlined in this Chapter.

1. The development proponent shall submit to the local government a notice of its intent to submit an application. The notice of intent (NOI) shall be in the form of an SB 35 Preliminary Application that includes all of the information described in Section 65941.1.
2. Upon receipt of a NOI, the Community Development Director shall engage in a scoping consultation regarding the proposed development with any California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed development as required by Section 65913.4(b), as may be amended from time to time.
3. After completing the NOI to submit an application for streamlined ministerial approval process (also referred to as SB 35 processing) and Tribal

Consultation process pursuant to Government Code Section 65913.4, Subsection (b), an applicant may submit an application for streamlined ministerial approval processing to the City. The applicant must submit a building permit application and an SB 35 streamlined ministerial approval process application demonstrating the proposed project's eligibility under California Government Code Section 65913.4. Once an application is submitted, the process set forth in Subsections E-H, below, shall be followed.

- E. Community Development Director Determinations.
1. The Community Development Director shall review the application submitted hereunder and determine if the project is consistent with or conflicts with any of the objective zoning standards, objective subdivision standards, and objective design review standards applicable to the project. The Community Development Director's review of the project shall be completed within 60 days of application submittal for projects of 150 or fewer units and 90 days for projects consisting of more than 150 units.
 2. If the City provides written comments as to any conflicts in the objective standards, or requests additional information to make such a determination, then the 60- or 90-day timeline will restart upon submittal of a revised development application in response to such written notice. The City's written comments shall specify the standard or standards with which the development conflicts and shall provide an explanation for the reason or reasons the development conflicts with that standard or standards within the timeframe specified.
 3. If the application can be brought into compliance with minor changes to the proposal, the City, in lieu of making detailed findings, will allow the applicant to correct any deficiencies within the timeframes noted in Subsection E.2 above.
 4. If the City fails to provide the required documentation determining consistency within these timeframes, the development shall be deemed to satisfy the City's objective planning standards and shall be deemed consistent.
 5. The Community Development Director's determination shall be forwarded to the City's Planning Commission consideration as part of the ministerial design review/public oversight process as provided for in Subsection F below, under California Government Code Section 65913.4(d).
- F. Planning Commission Ministerial Design Review/Public Oversight
- The Planning Commission, at a noticed public meeting, shall undertake ministerial design review and public oversight as provided for in California Government Code Section 65913.4(d). Planning Commission review shall include a review of the Community Development Director's determination as outlined in Subsection E above. Furthermore, the Planning Commission's review under this process shall be objective and strictly focused on the project's compliance with the criteria required for a streamlined project pursuant to the California Government Code Section 65913.4 and consistency with City reasonable objective zoning standards, objective subdivision standards, and objective design review standards applicable

to the project, which have been adopted prior to the submittal of the application to the City and apply to other developments within the City.

The Planning Commission’s review and a final determination on whether an application complies with the criteria under California Government Code Section 65913.4 and the reasonable objective zoning standards, objective subdivision standards, and objective design review standards applicable to the project must be completed in 90 days for projects with 150 or fewer units and 180 days for projects with more than 150 units, measured from the date of the application submittal.

The Planning Commission’s ministerial review and public oversight process shall not in any way inhibit, chill, or preclude the ministerial approval of the project if it is in compliance with criteria specified in Government Code Section 65913.4 and consistent with the objective zoning standards, objective subdivision standards, and objective design review standards applicable to the project.

- G. Submission of Application and Payment of Fees.
Development projects submitted pursuant to California Government Code Section 65913.4 must include a copy of the City’s City SB 35 Checklist Application as well as required documents for a Plot Plan application. Payment of application fees are due at time of submittal.
- H. Public Hearing.
The public hearing on an application hereunder shall be scheduled within the time frames provided for in Subsection F above.
- I. Modification.
An applicant can request modification of approval after ministerial review and approval but prior to issuance of a final building permit pursuant to California Government Code Section 65914.3, Subsection (g). If the modification request falls within the parameters in Section 65913.4, Subsection (g), (3) (A) or (B) 1, then such modification shall be subject to review pursuant to Subsections E-H above. Otherwise, the modification shall be reviewed by the Community Development Director to confirm compliance with California Government Code Section 65913.4.
- J. Parking. A qualifying SB 35 project is required to provide one parking space per residential unit. Furthermore, the City shall not impose any parking requirements for qualifying projects if any of the following instances are present:
 - a. The development is located within one-half mile of the Transit.
 - b. The development is located within an architecturally and historically significant historic district.
 - c. When on-street parking permits are required but not offered to the development’s occupants.
 - d. When there is a car share vehicle located within one block of the development. A block can be up to 1,000 linear feet of pedestrian travel along a public street from the development.
Mixed-use projects must provide parking for the commercial component of the development as required by Chapter 9.11.040 (Off-street parking requirements).
- K. The expiration dates for projects approved under SB 35 are as follows [Govt Code §65913.4(f)(2)]:

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1. No expiration: Projects where 50% of the units are affordable to households making below 80% of the area median income (below moderate-income levels) and the project includes public investment in housing affordability beyond tax credits.
 2. After three years: Projects not including affordable housing are noted in the bullet above. Projects shall remain valid for three years and stay in effect as long as construction has begun and not ceased for more than 180 days. A one-year extension to the original three-year period may be granted if progress is made toward construction.
- L. Definitions. For the purpose of this section, the following definitions shall apply unless the context clearly indicates or requires a different meaning.
- “Application” means a submission requesting Streamlined Ministerial Approval pursuant to Government Code section 65913.4 and the Guidelines, which contain information pursuant to Section 300(b) describing the development’s compliance with the criteria outlined in Article IV of the Guidelines.
- “Guidelines” shall mean the Updated Streamlined Ministerial Approval Process issued by the California Department of Housing and Community Development, as updated March 30, 2021, and as may be updated in the future.
- “Ministerial processing” means a process for development approval involving little or no personal judgment by the public official as to the wisdom or manner of carrying out the project. The public official merely ensures that the proposed development meets all the “objective zoning standards,” “objective subdivision standards,” and “objective design review standards” in effect at the time that the application is submitted to the local government but uses no special discretion or judgment in reaching a decision.
- “Ministerial approval” means approval of a project that complies with requirements and guidelines as set forth in Government Code Section 65913.4 that is non-discretionary and cannot require a conditional use permit or other discretionary local government review or approval.
- “Objective zoning standard”, “objective subdivision standard”, and “objective design review standard” means standards that involve no personal or subjective judgment by a public official and are uniformly verifiable by reference to an external and uniform benchmark or criterion available and knowable by both the applicant or development proponent and the public official prior to submittal, and includes only such standards as are published and adopted by ordinance or resolution by a local jurisdiction before submission of a development application.
- “Urban uses” means any current or former residential, commercial, public institutional, transit or transportation passenger facility, or retail use, or any combination of those uses. Parcels that are only separated by a street or highway shall be considered adjoined.

9.03.080 Streamlined Ministerial Approval Process (Senate Bills 330 and 8)

- A. Purpose and Intent. This section is adopted pursuant to the provisions of Senate Bill 330 (SB 330), Housing Crisis Act of 2019 (HCA), and Senate Bill (SB 8), which is an extension of the HCA. The HCA aims to increase residential unit development, protect existing housing inventory, and expedite permit processing.
- B. Applicability. This section establishes clear eligibility criteria to establish a streamlined review and approval of SB 330 applications pursuant to the requirements in California Government Code Sections 65589.5, 65905.5, 65913.10, 65940, 65941.1, 65943, 65950, 66300, and 66301.
- C. Qualifying Requirements.
1. The project must be a housing development project, as defined in California Government Code Section 65589.5(h)(2)(B). Specifically, pursuant to Government Code Section 65589.5(h)(2)(B) a project is a housing development project if:
 - a. Residential projects, excluding hotels, assisted living or other commercial dwelling units. Single-family, ADUs and/or JADUs are excluded from dwelling unit count;
 - b. Mixed-use development consisting of residential and nonresidential uses with at least two-thirds of the square footage of the project designated for residential use (not including hotels, assisted living or other commercial dwelling units); or
 - c. The project is a transitional or supportive housing development project.
 2. The HCA does not apply to housing development projects located within a very high fire hazard severity zone.
 3. The project must meet all objective zoning and design review standards in effect at the time the application is submitted.
If the project is consistent with the minimum and maximum density range allowed within the General Plan land use designation, it is deemed consistent with housing density standards.
Any density bonus, concessions, incentives, or waivers of development standards or reduction of parking standards requested under Chapter 9.03.050 (Density bonus program for affordable housing) are deemed consistent with objective standards.
 4. The City may not approve a housing development project that requires the demolition or removal of a protected unit before January 1, 2030, unless the project will replace any existing, demolished or removed protected units. "Protected Units" are defined as:
 - a. Affordable units deed-restricted to households earning below 80 percent of area median income (AMI).
 - b. Occupied by low-income households earning below 80 percent of AMI.
 - c. Units vacated under the Ellis Act within 10 years prior to development application.
- D. Application and Processing.

1. Project applicants choosing to seek vesting rights through a SB 330 Preliminary Application are encouraged to schedule a preliminary project discussion with Planning Division staff to assess eligibility before submitting a Preliminary Application for the SB 330 review process.
2. The SB 330 Preliminary Application must be filed with the Planning Division prior to filing a project application requesting approval of any discretionary action.
3. In order for a housing development project to receive initial vesting rights, a preliminary application must include all of the information required on the SB 330 Preliminary Application consistent with subdivision (a) of California Government Code Section 65941.1 and upon verification that the preliminary application processing fee is paid.
4. The SB 330 Preliminary Application shall be accompanied by any maps and supporting documents, including a site plan, floor plans, elevations, exterior material details and colors, and any other drawings that are required by this application.
5. A subsequent project application filed with the Planning Division requesting approval of a discretionary action (not including ministerial administrative reviews) must be filed within 180 days of the date that the SB 330 Preliminary Application is deemed complete.
6. If the project application is deemed incomplete or inconsistent after filing, the City shall provide the applicant in writing with a detailed explanation of the reason within 30 days (if 150 units or fewer) or 60 days (if 151 units or more). The applicant must submit all missing or incomplete items to Planning Division within 90 days of being notified in writing by Planning Division staff. If the project is again determined to be incomplete, the project applicant may appeal. The City has 60 days to respond to appeal.
7. Construction of the project must commence within two and one-half years following the date that the project receives final approval, including all necessary approvals to be eligible to apply for, and obtain a building permit or permits and all appeal periods or statutes of limitations have been exhausted or resolved in favor of the housing development project.
8. Any change in the residential unit count is limited to less than 20 percent exclusive of any increase resulting from the receipt of a density bonus, concession, waiver, or similar provision indicated on the submitted and deemed complete SB 330 Preliminary Application, otherwise the project must be resubmitted.
9. Any change in the Building Area is limited to less than 20 percent exclusive of any increase resulting from receiving a density bonus, concession, waiver, or similar provision indicated on the submitted and deemed-complete SB 330 Preliminary Application, otherwise the project must be resubmitted.
10. If the project submitted for a building permit differs substantially from the original submission (more than 20 percent in unit count or square footage), the Planning Division will re-certify the project for eligibility and re-review

the project’s design, restarting the timeline and requiring resubmittal of the SB 330 Preliminary Application.

E. Public Hearings

SB 330 prevents jurisdictions from conducting more than five public hearings in connection with the approval of a housing development project that meets objective zoning standards. The definition of “hearing” found in California Government Code section 65905.5 includes required Planning Commission, City Council, or other board, committee, or commission hearing or public workshop as well as any appeal hearing.

Meetings held solely pursuant to CEQA law, including CEQA appeals, are not counted toward the number of hearings.

9.05.040 Industrial site development standards.

A. General Requirements.

1. The following table sets forth minimum property development standards for all land, buildings and structures constructed within the specified industrial districts. All sites shall conform to the dimensions set forth in this section. A development or center may, however, be a combination of many parcels totaling at least the required site size, but its design must be integrated and unified.
2. In addition, projects must comply with the special requirements enumerated in subsection B, the performance standards included in Chapter 9.10 and any other applicable city ordinances, policies and programs.

**Table 9.05.040-8
Industrial Site Development
Minimum Standards**

Requirement	BP/LI¹	BPX	I
Minimum site area (in acres)	1	1	5
Minimum site width (in feet)	200	200	300
Minimum site depth (in feet)	200	200	300
Minimum front building setback area (in feet)	20	20	20
Minimum interior side building setback area (in feet)*	*(see note below)	*(see note below)	—
Minimum street side building setback area (in feet)	20	20	20
Minimum rear building setback area (in feet)*	*(see note below)	*(see note below)	—

1. See Special Site Development Standards Section 9.05.040(B)(9) for unique separation requirements for structures greater than 50,000 square feet in building area.

* Structures shall be constructed on the property line or a minimum of three feet from the property line.

B. Special Site Development Standards.

1. When any industrial district abuts a property in any residential district, a minimum building setback equal to the building height, but not less than twenty (20) feet shall be required from such residential district. Further, the ten (10) feet of such setback nearest the district boundary line shall be landscaped.
2. Where off-street parking areas in industrial districts are visible from any street, screening in the form of a landscaped earthen berm, shrubs, or decorative wall three feet in height shall be erected between the required landscape area and the parking area.
3. In all industrial districts, required front building setback areas shall be landscaped. The landscaping shall consist predominantly of plant materials except for necessary walks and drives.
4. Except as otherwise permitted, a street side building setback area in any industrial district shall be used only for landscaping, pedestrian walkways, driveways or off-street parking. Where off-street parking in any industrial district is located within building setback areas, a minimum landscaped area ten (10) feet in depth shall be provided between the property line and

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- parking area, with an additional minimum landscaped area ten (10) feet in depth required between the parking area and the building.
5. Except as otherwise permitted, required rear and interior side building setback areas in any industrial district shall be used only for landscaping, pedestrian walkways, driveways, off-street parking or loading, recreational activities or facilities, and similar accessory activities.
 6. Parking for each use shall comply with the requirements of Chapter 9.11 and this title.
 7. The land uses planned for each development shall be specified on the approved site plans. No use shall be established unless the development where it is located has adequate parking facilities to accommodate such use and any planned uses that share parking facilities with such use.
 8. In the BP, LI and I districts, the retail sales of goods produced or warehoused in connection with a manufacturing, assembly or warehouse use may be conducted, provided that no more than fifteen (15) percent of the gross floor area of the space occupied by such use is devoted to retail sales. Any merchandise storage or display areas to which the public has access shall be considered as committed to the percentage of building area used for retail purposes.
 9. In the LI district, industrial and warehouse structures greater than fifty thousand (50,000) square feet in building area shall be separated from any residential district as determined by an air quality and noise impact analysis. The minimum separation distance for such uses shall be two hundred fifty (250) feet between the residential district and the truck court or loading area.
 10. The parcelization of a business complex for marketing, financing or other purpose shall not establish separate privileges with respect to the maximum percentage of floor area specified in this section with respect to the BPX district.
 11. Industrial buildings larger than 50,000 square feet shall be designed and constructed to meet the equivalent level of *LEED* Silver.
 12. Industrial buildings with more than 30 required Truck Parking stalls shall provide a minimum of 10% of all required truck parking stalls with appropriately sized conduit(s) for future truck charging facilities.
 13. Industrial Building Signage
 - a. All signage required under this Section must be posted in English and Spanish and must be permanent, durable, weather-proof, and legible.
 - b. Signs and drive aisle pavement markings shall clearly identify the onsite circulation pattern to minimize unnecessary on-site vehicular travel.
 - c. Signs shall be installed at all truck exit driveways directing truck drivers to the truck route as indicated in the Truck Routing Plan and State Highway System.
 14. Roofing.
 - a. All building roofs shall be solar-ready, which includes designing and constructing buildings in a manner that facilitates the maximum

installation of a rooftop solar photovoltaic (PV) system after the building has been constructed.

15. Warehouse electrical rooms shall be sufficiently sized to accommodate the potential need for additional electrical panels, either a secondary electrical room shall be provided in the building, or the primary electrical room shall be sized 25% larger than is required to satisfy the service requirements of the building, or the electrical gear shall be installed with the initial construction with 25% excess demand capacity.

Exhibit G

9.14.100 Land division dedications, improvements, fees and reservations.

A. Dedications.

1. All streets, highways and alleys, and other parcels of land intended for public use including, but not limited to, access road easements required for flood control and utilities intended for public use, shall be offered for dedication to the public by owners certificate as a part of a final land division map. No utility easement or other rights-of-way shall be granted within proposed street dedication subsequent to the date of filing of a preliminary tentative map. Necessary right-of-way outside of the tract boundary must be processed by separate instruments.
2. Whenever a minor arterial or higher classification is designated on the circulation element of the general plan of the city for Moreno Valley as requiring an ultimate right-of-way of eighty-eight (88) feet or greater and such highway either adjoins or crosses a proposed land division, access rights may be required to be offered for dedication to the city or otherwise restricted. The note "ACCESS RESTRICTED" shall be shown along the highway frontages on the final land division map, as provided herein. Access rights shall be restricted except for limited access openings as approved by the city engineer. However, the location of access opening(s) to commercially zoned property may be postponed to the development stage as approved by the city engineer.

B. Land Division Improvements.

1. Improvements installed in land divisions shall be constructed in conformance with city standards.
2. In the absence of a standard for an improvement, the city engineer may establish a standard in keeping with good construction and engineering practices.
3. When asphalt-concrete dikes are permitted and drainage is required to cross at intersecting streets, concrete curb returns and cross-gutters shall be installed.
4. Structural roadbed section shall be designed using recognized design methods, employing engineering soils analysis and determination of traffic evaluations.
5. The street pattern in the land development shall not land lock adjacent property or preclude access to public land.
6. When located under the pavement, utility mains and utility services shall be installed before the final street surfacing is installed.
7. When an existing underground utility or pipeline crosses a proposed land division or an access to a land division, the land divider shall adequately protect the utility or pipeline as directed by the utility owner as part of the conditional approval of the land division.
8. Projects which are located in high fire hazard areas shall require special fire mitigation measures. These fire mitigation measures shall be as per city ordinance.

C. Improvements Plans Required.

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1. All improvements constructed or installed in a land division shall be in accordance with detailed plans and specifications as approved in writing by the city engineer prior to commencement of such improvement work.
 2. All plans shall be submitted to the city engineer and shall be approved by him before submitting a final land division map to the city council. Upon approval of such plans, they shall become the property of the city.
 3. All improvements constructed or installed in land divisions shall be in accordance with plans and specifications as approved by the city engineer.
 4. Contractors shall secure an encroachment permit for all work done in connection with land division projects within city right-of-way and Riverside County flood control right-of-way prior to commencing such work.
 5. The improvement plans shall show the location of all existing improvements, gas and any other service facilities.
 6. Improvements proposed or required on state highway right-of-way shall be located in the improvement plans and designed to Department of Transportation standards. Prior to approval by the city engineer, the land divider's engineer shall obtain the Department of Transportation's approval for such improvements.
- D. Improvement for Subdivision. The minimum improvements which a land divider shall install, or enter into an agreement to install, for subdivisions shall be as hereinafter set forth in Schedule "A," "B," "C," and "D" for tentative map subdivisions and in Schedule "E," "F," "G," "H" and "I" for parcel map divisions.
1. Exemptions:
The City Engineer may determine an exemption is appropriate if the improvement is infeasible or:
 - a. If there is insufficient real property to construct full-width improvements and the project developer cannot acquire the requisite real property from the applicable property owner(s) after making a good faith effort, and if the project involves a subdivision, then the City will either obtain said property or this requirement shall be waived by the City Engineer pursuant to the provisions of the Subdivision Map Act.
 - b. If there is insufficient real property to construct full-width improvement and the project developer cannot acquire the requisite real property from the applicable property owner(s) after making a good faith effort, and if the project does not involve a subdivision, then the City Engineer may waive the full-width improvement requirement.
 2. If the full-width improvements are located on a street that are subject to improvement via development impact fees, the developer may receive Development Impact Fee credits for improvements in accordance with Chapters 3.38 (Residential Development Impact Fees) and 3.42 (Commercial and Industrial Development Impact Fees) and any applicable City Policies.
- E. Schedule "A" Subdivision. Any division of land into five or more parcels, where any parcel is less than eighteen thousand (18,000) square feet in net area, shall be

Exhibit G

defined as a Schedule “A” subdivision. The minimum improvements for a Schedule “A” subdivision shall be as follows:

1. Streets. Unless otherwise determined by the City Engineer, subdivision street improvements shall be constructed to full-width. The minimum improvements for streets are established as follows:
 - a. Divided Major Arterial. One hundred ten (110) feet in width, designed and constructed in conformance with city standards;
 - b. Modified Divided Major Arterial. One hundred two (102) feet in width, designed and constructed in conformance with city standards;
 - c. Divided Arterial. Eighty-six (86) feet in width, designed and constructed in conformance with city standards;
 - d. Arterial. Seventy-six (76) feet in width, designed and constructed in conformance with city standards;
 - e. Minor Arterial. Sixty-four (64) feet in width, designed and constructed in conformance with city standards;
 - f. Industrial Collector. Fifty-six (56) feet in width, designed and constructed in conformance with city standards;
 - g. Collector Streets. Forty-four (44) feet in width, designed and constructed in conformance with city standards;
 - h. General Local Streets. Forty (40) feet in width, designed and constructed in conformance with city standards;
 - i. Short Local or Circulatory Interior Street. Thirty-six (36) feet in width, designed and constructed in conformance with city standards;
 - j. Restricted Local or Noncirculatory Interior Streets. Thirty-two (32) feet in width, designed and constructed in conformance with city standards;
 - k. Access Road. Thirty-two (32) feet in width, designed and constructed in conformance with city standards;
 - l. Frontage roads designed and constructed in conformance with city standards;
 - m. Cul-de-sac streets shall be designed and constructed in conformance with city standards;
 - n. Alleys. Twenty (20) feet in width, designed and constructed in conformance with city standards;
 - o. If exempted from full street improvements: Part-width streets shall be one-half of the required improvements plus an additional twelve (12) feet, but not less than twenty-eight (28) feet, designed and constructed in conformance with city standards;
 - p. Street Name Signs. Type and placement shall conform with city standards;
 - q. Barricades shall be placed at the end of dead-end streets in accordance with city standards;
 - r. Sidewalks shall be required to be constructed unless they are determined by the approving body to be unnecessary considering the design of the development. Sidewalk construction shall be in accordance with city standards.

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2. Domestic Water. The minimum requirements for domestic water supply and distribution system are as follows:
 - a. Water Supply. Water shall be provided to meet the requirements as set forth in the California Administrative Code, Title 22, Chapter 16 (California Waterworks Standards); and
 - b. Piped water systems.
 3. Fire Protection. The minimum requirement for fire protection facilities in residential zones that do not allow multifamily residential uses shall be as follows:
 - a. Type of fire hydrant and connection as approved by the agency providing fire protection;
 - b. The water system shall be capable of providing a fire flow of one thousand five hundred (1,500) GPM for two hours duration at a minimum of twenty (20) PSI operating pressure from each fire hydrant;
 - c. The fire protection system shall be installed and operational prior to any combustible building material being placed on the job site; and
 - d. In zones that allow multifamily residential uses, the minimum fire protection shall be as set forth in applicable city ordinance or ordinances.
 4. Sewage Disposal. The minimum requirement for sewage disposal shall be as follows:
 - a. Sewage disposal shall be provided by connection to an existing collection system capable of accepting waste load, or, if an existing collection system is not available, by the development of individual subsurface sewage disposal systems that meet health department and the regional water quality control board standards and requirements;
 - b. Improvement plans for sewage collection systems shall be reviewed as required by this chapter; and
 - c. Dry sewer may be required as set forth in Section 9.14.120 when subsurface sewage disposal is approved.
 5. Fences. Minimum fencing requirements shall be as follows: six-foot high chain link galvanized wire fence shall be installed along any canal, drain, expressway or other feature deemed to be hazardous.
 6. Electrical and Communication Facilities. Minimum requirement for electrical and communication facilities shall be as follows: electrical and communication facilities shall be installed in conformity with the provision of Section 9.14.130.
- F. Schedule "B" Subdivision. Any division of land into five or more parcels, where any parcel is not less than eighteen thousand (18,000) square feet in net area up to two acres in gross area, shall be defined as a Schedule "B" subdivision. The minimum improvements for a Schedule "B" subdivision shall be as follows:
1. Streets. Unless otherwise determined by the City Engineer, subdivision street improvements shall be constructed to full-width. The minimum improvements for streets are established as follows:

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- a. Divided Major Arterial. One hundred ten (110) feet in width, designed and constructed in conformance with city standards;
 - b. Modified Divided Major Arterial. One hundred two (102) feet in width, designed and constructed in conformance with city standards;
 - c. Divided Arterial. Eighty-six (86) feet in width, designed and constructed in conformance with city standards;
 - d. Arterial. Seventy-six (76) feet in width, designed and constructed in conformance with city standards;
 - e. Minor Arterial. Sixty-four (64) feet in width, designed and constructed in conformance with city standards;
 - f. Industrial Collector. Fifty-six (56) feet in width, designed and constructed in conformance with city standards;
 - g. Collector Streets. Forty-four (44) feet in width, designed and constructed in conformance with city standards;
 - h. General Local Streets. Forty (40) feet in width, designed and constructed in conformance with city standards;
 - i. Short Local or Circulatory Interior Streets. Thirty-six (36) feet in width, designed and constructed in conformance with city standards;
 - j. Restricted Local or Noncirculatory Interior Streets. Thirty-two (32) feet in width, designed and constructed in conformance with city standards;
 - k. Access Roads. Thirty-two (32) feet in width, designed and constructed in conformance with city standards;
 - l. Frontage roads designed and constructed in conformance with city standards;
 - m. Cul-de-sac streets shall be designed and constructed in conformance with city standards;
 - n. Alleys. Twenty (20) feet in width, designed and constructed in conformance with city standards;
 - o. If exempted from full street improvements: Part-width street shall be one-half of the required improvement, plus an additional twelve (12) feet, but not less than twenty-eight (28) feet, designed and constructed in conformance with city standards;
 - p. Street Name Signs. Type and placement shall conform with city standards;
 - q. Barricades shall be placed at end of dead-end streets in conformance with city standards.
2. Domestic Water. The minimum requirement for a domestic water supply and distribution system is as follows:
 - a. Water Supply. Water shall be provided to meet the requirements as set forth in the California Administrative Code, Title 22, Chapter 16 (California Waterworks Standards);
 - b. Piped water systems.
 3. Fire Protection Systems. The minimum requirement for protection facilities in residential zones that do not allow multifamily residential uses shall be as follows:

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- a. Type of fire hydrant and connection as approved by the agency providing fire protection;
 - b. Approved fire hydrants shall be located on all city streets, and spaced as approved by Moreno Valley fire services;
 - c. The water system shall be capable of providing a fire flow of one thousand five hundred (1,500) GPM for two hours at a minimum of twenty (20) PSI operating pressure from each fire hydrant;
 - d. The fire protection system shall be installed and operational prior to any combustible building material being placed on the job site; and
 - e. In zones that allow multifamily residential uses, the minimum fire protection shall be as set forth in applicable city ordinances.
4. Sewage Disposal. The minimum requirements for sewage disposal shall be as follows:
- a. Sewage disposal shall be provided by connection to an existing collection system capable of accepting the waste load, or, if an existing collection system is not available, by the development of individual subsurface sewage disposal systems that meet the Riverside County health department and the regional water quality control board standards and requirements;
 - b. Improvement plans for sewage collection systems shall be reviewed as required by this chapter; and
 - c. Dry sewer may be required as set forth in this chapter when subsurface sewage disposal is approved.
5. Fences. Minimum fencing requirement shall be as follows: six-foot high chain link galvanized wire fence shall be installed along any canal, drain, expressway or other feature deemed to be hazardous.
6. Electrical and Communication Facilities. Minimum requirement for electrical and communication facilities shall be as follows: electrical and communication facilities shall be installed in conformity with the provisions of Section 9.14.130.
- G. Schedule "C" Subdivision. Any division of land into five or more parcels where any parcel is not less than two acres in gross area up to five acres in gross area. The minimum improvement of Schedule "C" subdivision shall be as follows:
1. Streets. Unless otherwise determined by the City Engineer, subdivision street improvements shall be constructed to full-width. All streets shall be thirty-two (32) feet in width, improved with asphalt concrete and paving, designed and constructed in conformance with city standards, unless further improvements are required on boundary streets to achieve compatibility with contiguous existing streets or street improvement requirements set forth on adjacent land division.
 2. Domestic Water. The minimum requirement for a domestic water supply and distribution system is as follows:
 - a. No water system required. If a water system is installed, the requirements shall be as follows:
 - i. Water Supply. Water shall be provided to meet the requirements as set forth in the California Administrative

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- Code, Title 22, Chapter 16 (California Waterworks Standards). Improvement plan review shall be as required by this chapter;
- ii. Piped water systems.
 - b. If no water system is installed, the following statement shall be placed on each map sheet of the environmental constraints sheet, in letters not less than one-fourth inch high:
 NO WATER SYSTEM IS PROVIDED FOR THE LAND DIVISION AS OF THE DATE OF RECORDATION OF THIS MAP.
 3. Fire Protection. If a water system is installed, the minimum requirement for fire protection facilities in single-family residential zones shall be as approved by the fire chief as follows:
 - a. Type of fire hydrant and connection as approved by the agency providing fire protection;
 - b. Approved fire hydrants shall be located on all city streets and spaced as approved by Moreno Valley fire services;
 - c. The water system shall be capable of providing a fire flow of one thousand five hundred (1,500) GPM for two hours duration at a minimum of twenty (20) PSI operating pressure from each fire hydrant; and
 4. Sewage Disposal. The minimum requirements for sewage disposal shall be as follows:
 - a. No sewage disposal collection system is required; and
 - b. The land divider will be required to provide the Riverside County health department with a sewage disposal feasibility report in conformance with health department and the regional water quality control board standards.
 5. Electrical and Communication Facilities. The minimum requirements for electrical and communication facilities shall be as follows:
 - a. No electrical and communication facilities are required; and
 - b. If installed, they shall be installed in conformance with the provisions of Section 9.14.130.
 - H. Schedule "D" Subdivision. Any division of land into five or more parcels, where any parcel is not less than 5 acres in gross area up to twenty (20) acres in gross area, shall be defined as a Schedule "D" subdivision. The minimum improvements of a Schedule "D" subdivision shall be as follows:
 1. Streets. Unless otherwise determined by the City Engineer, subdivision street improvements shall be constructed to full-width.
 - a. If the streets are not to be accepted for maintenance by the city, all streets shall be improved with twenty-four (24) feet of suitable aggregate base, four inches thick, on a forty-foot graded roadway section. Vertical grades and horizontal alignments shall be held to an acceptable tolerance as determined by the city engineer;
 - b. If the streets are to be accepted for maintenance by the city, the improvements shall be the same as those required for Schedule "C" subdivisions;

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- c. Access road shall be a minimum eighteen-foot wide graded roadbed section engineered to a profile and alignment as approved by the city engineer, which provides access to a paved and maintained street or highway.
 2. Domestic Water. The minimum requirement for a domestic water supply and distribution system is as follows:
 - a. No Water System Required. If a water system is installed, the requirements shall be as follows:
 - i. Water Supply. Water shall be provided to meet the requirements as set forth in the California Administrative Code, Title 22, Chapter 16 (California Waterworks Standards). Improvement plan review shall be as required by this chapter;
 - ii. Piped water systems.
 - b. If no water system is installed, the following statement shall be placed on each map sheet of the recorded land division map, in letters no less than one-fourth inch high:
NO WATER SYSTEM IS PROVIDED FOR THE LAND DIVISION AS OF THE DATE OF RECORDATION OF THIS MAP.
3. Fire Protection.
 - a. If a water system is installed, the minimum requirements for fire protection facilities in single-family residential zones shall be as approved by the fire chief or as follows:
 - i. The water system shall be capable of providing a fire flow of one thousand five hundred (1,500) GPM for two hours duration at a minimum of twenty (20) PSI operating pressure from each fire hydrant; and
 - ii. Approved fire hydrants shall be located on all city streets and spaced as approved by the fire prevention bureau.
4. Sewage Disposal. The minimum requirements for sewage disposal shall be as follows:
 - a. No sewage disposal collection system is required; or
 - b. The land divider will be required to provide the health department with a sewage disposal feasibility report in conformance with the Riverside County health department and the regional water quality control board standards.
5. Electrical and Communication Facilities. The minimum requirements for electrical and communication facilities shall be as follows:
 - a. No electrical and communication facilities are required; and
 - b. If installed, they shall be installed in conformance with the provisions of Section 9.14.130.
- I. Improvements for Parcel Map Divisions.
 1. The minimum improvements which a land divider shall install, or enter into an agreement to install, for parcel map divisions shall be as hereinafter set forth in Schedule "E," "F," "G," "H" and "I".

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- J. Schedule “E” Parcel Map Division. Any division of land into two or more parcels in commercial or industrial zones, regardless of parcel size shall be described as a Schedule “E” parcel map division. The minimum improvements for a Schedule “E” parcel map division shall be as follows:
1. Streets. Unless otherwise determined by the City Engineer, subdivision street improvements shall be constructed to full-width. The minimum improvements for streets are established as follows:
 - a. All through streets shall be sixty-four (64) feet in width, designed and constructed in conformance with city standards;
 - b. No circulatory streets shall be less than fifty-six (56) feet in width, designed and constructed in conformance with city standards;
 - c. If exempted from full street improvements: No part-width interior street shall be less than thirty-four (34) feet in width;
 - d. Concrete curb and gutter shall be required in all cases;
 - e. Industrial collector streets shall be fifty-six (56) feet in width, designed and constructed in conformance with city standards;
 - f. Sidewalks may be required to be constructed unless they are determined by the approving body to be unnecessary considering the design of the development. Sidewalk construction shall be in accordance with city standards;
 - g. Access roads, thirty-two (32) feet in width, designed and constructed in conformance with city standards.
 2. Domestic Water. The minimum requirements for domestic water supply and distribution system is as follows:
 - a. Water Supply. Water shall be provided to meet the requirements as set forth in the California Administrative Code, Title 22, Chapter 16 (California Waterworks Standards). Improvement plan review shall be as required by this chapter; and
 - b. Piped water systems.
 3. Fire Protection. The minimum fire protection requirements shall be as provided in applicable city ordinances.
 4. Sewage Disposal. The minimum requirement for sewage disposal shall be as follows:
 - a. Sewage disposal shall be provided by connection to an existing collection system capable of accepting the waste load, or, if an existing collection system is not available, by the development of individual subsurface sewage disposal systems that meet health department and the regional water quality control board standards and requirements;
 - b. Improvement plans for sewage collection systems shall be reviewed as required in this chapter;
 - c. Dry sewer may be required as set forth in Section 9.14.120 when subsurface sewage disposal is approved.
 5. Fences. Minimum requirement for fencing shall be as follows: six-foot high chain link galvanized wire fence shall be installed along any canal, drain, expressway or other feature deemed to be hazardous.

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6. Electrical and Communication Facilities. The minimum requirements for electrical and communication facilities shall be as follows: electrical and communication facilities shall be installed in conformity with the provisions of Section 9.14.130.
- K. Schedule “F” Parcel Map Division. Any division of land into four or less parcels, where any parcel is less than eighteen thousand (18,000) square feet in net area, shall be defined as a Schedule “F” parcel map division. The minimum improvements for a Schedule “F” parcel map division shall be as follows:
1. Streets. Unless otherwise determined by the City Engineer, subdivision street improvements shall be constructed to full-width. The minimum improvements for streets are established as follows:
 - a. Divided Major Arterial. One hundred ten (110) feet in width, designed and constructed in conformance with city standards;
 - b. Modified Divided Major Arterial. One hundred two (102) feet in width, designed and constructed in conformance with city standards;
 - c. Divided Arterial. Eight-six (86) feet in width, designed and constructed in conformance with city standards;
 - d. Arterial. Seventy-six (76) feet in width, designed and constructed in conformance with city standards;
 - e. Minor Arterial. Sixty-four (64) feet in width, designed and constructed in conformance with city standards;
 - f. Industrial Collector. Fifty-six (56) feet in width, designed and constructed in conformance with city standards;
 - g. Collector Streets. Forty-four (44) feet in width, designed and constructed in conformance with city standards;
 - h. General Local Streets. Forty (40) feet in width, designed and constructed in conformance with city standards;
 - i. Short Local or Circulatory Interior Streets. Thirty-six (36) feet in width, designed and constructed in conformance with city standards;
 - j. Restricted Local or Noncirculatory Interior Streets. Thirty-two (32) feet in width, design and constructed in conformance with city standards;
 - k. Access Roads. Thirty-two (32) feet in width, designed and constructed in conformance with city standards;
 - l. Frontage roads designed and constructed in conformance with city standards;
 - m. Cul-de-sac streets shall be designed and constructed in conformance with city standards;
 - n. Alleys. Twenty (20) feet in width, designed and constructed in conformance with city standards;
 - o. If exempted from full street improvements: Part-width streets shall be one-half of the required improvement, plus an additional twelve (12) feet, but not less than twenty-eight (28) feet, designed and constructed in conformance with city standards;
 - p. Street Name Signs. Type and placement shall conform with city standards;

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- q. Barricades shall be placed at end of dead-end streets in conformance with city standards.
2. Domestic Water. The minimum requirement for a domestic water supply and distribution system is as follows:
 - a. Water Supply. Water shall be provided to meet the requirements as set forth in the California Administrative Code, Title 22, Chapter 16 (California Waterworks Standards). Improvement plan review shall be as required by this chapter;
 - b. Piped water systems.
3. Fire Protection Systems. The minimum requirement for protection facilities in residential zones that do not allow multifamily residential uses shall be as follows:
 - a. Type of fire hydrant and connection as approved by the agency providing fire protection;
 - b. Approved fire hydrants shall be located on all city streets and spaced as approved by the fire prevention bureau;
 - c. The water system shall be capable of providing a fire flow of one thousand five hundred (1,500) GPM for two hours at a minimum of twenty (20) PSI operating pressure from each fire hydrant;
 - d. The fire protection system shall be installed and operational prior to any combustible building material being placed on the job site; and
 - e. In zones that allow multifamily residential uses, the minimum fire protection shall be as set forth in city standards.
4. Sewage Disposal. The minimum requirements for sewage disposal shall be as follows:
 - a. Sewage disposal shall be provided by connection to an existing collection system capable of accepting the waste load, or, if an existing collection system is not available, by the development of individual subsurface sewage disposal systems that meet the Riverside County health department and the regional water quality control board standards and requirements;
 - b. Improvement plans for sewage collection systems shall be reviewed as required by this chapter; and
 - c. Dry sewer may be required as set forth in Section 9.14.120 when subsurface sewage disposal is approved.
5. Fences. Minimum fencing requirement shall be as follows: six-foot high chain link galvanized wire fence shall be installed along any canal, drain, expressway or other feature deemed to be hazardous.
6. Electrical and Communication Facilities. Minimum requirement for electrical and communication facilities shall be as follows: electrical and communication facilities shall be installed in conformity with the provisions of Section 9.14.130.
- L. Schedule "G" Parcel Map Division. Any division of land into four or less parcels, where any parcel is not less than eighteen thousand (18,000) square feet in net area up to one acre in gross area, shall be defined as a Schedule "G" parcel map

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division. The minimum improvements for Schedule “G” parcel map division shall be as follows:

1. Street. Unless otherwise determined by the City Engineer, subdivision street improvements shall be constructed to full-width. The minimum improvements for streets are established as follows:
 - a. Divided Major Arterial. One hundred ten (110) feet in width, designed and constructed in conformance with city standards;
 - b. Modified Divided Major Arterial. One hundred two (102) feet in width, designed and constructed in conformance with city standards;
 - c. Divided Arterial. Eighty-six (86) feet in width, designed and constructed in conformance with city standards;
 - d. Arterial. Seventy-six (76) feet in width, designed and constructed in conformance with city standards;
 - e. Minor Arterial. Sixty-four (64) feet in width, designed and constructed in conformance with city standards;
 - f. Industrial Collector. Fifty-six (56) feet in width, designed and constructed in conformance with city standards;
 - g. Collector Streets. Forty-four (44) feet in width, designed and constructed in conformance with city standards;
 - h. General Local Streets. Forty (40) feet in width, designed and constructed in conformance with city standards;
 - i. Short Local or Circulatory Interior Streets. Thirty-six (36) feet in width, designed and constructed in conformance with city standards;
 - j. Restricted Local or Noncirculatory Interior Streets. Thirty-two (32) feet in width, designed and constructed in conformance with city standards;
 - k. Access Roads. Thirty-two (32) feet in width, designed and constructed in conformance with city standards;
 - l. Frontage roads designed and constructed in conformance with city standards;
 - m. Cul-de-sac streets shall be designed and constructed in conformance with city standards;
 - n. Alleys. Twenty (20) feet in width, designed and constructed in conformance with city standards;
 - o. If exempted from full street improvements: Part-width streets shall be one-half of the required improvement, plus an additional twelve (12) feet, but not less than twenty-eight (28) feet, designed and constructed in conformance with city standards;
 - p. Street Name Signs. Type and placement shall conform with city standards;
 - q. Barricades shall be placed at end of dead-end streets in conformance with city standards.
2. Domestic Water. The minimum requirement for a domestic water supply and distribution system is as follows:
 - a. No Water System Required. If a water system is installed, the requirements shall be as follows:

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- improved with asphalt concrete paving, designed and constructed in conformance with city standards, unless further improvements are required on boundary streets to achieve compatibility with contiguous existing streets or street improvement requirements set forth on adjacent land divisions; and
- ii. Noncirculatory streets located in an area where the geography will not sustain parcels of lesser size may have the streets section reduced to twenty-eight (28) feet in width. The street shall be improved with asphalt concrete paving, designed and constructed in conformance with city standards.
 - c. Improvements required on general plan streets, collector or greater, shall be at the same level as exists, or for which improvements have been bonded on a contiguous parcel of land.
 - d. Access roads shall be a minimum eighteen-foot wide graded roadbed section designed and constructed to a profile and alignment as approved by the city engineer which provides access to a paved and maintained street or highway.
2. Other Improvements. Domestic water, fire protection facilities and electrical and communication facilities shall be as necessary per applicable city ordinances.
 3. Sewage Disposal. The minimum requirements for sewage disposal shall be as follows: no sewage disposal collection system is required; however, the land divider may be required to provide the health department with a sewage disposal feasibility report in conformance with health department and regional water quality control board standards.
 4. Agricultural Lands. The following agricultural lands shall be exempt from all improvement requirements specified within this section:
 - a. Lands lying within an established agricultural preserve formed pursuant to the Williamson Act;
 - b. Lands (parcels) zoned AG and identified in the general plan as agriculture and not less than five acres in size.
 5. Exceptions. For the purpose of this section, any parcel map division located in its entirety within a community services district, the following exception shall apply:

Whenever in this title reference is made to any street design, standard, minimum improvements, maintenance, access, or dedication thereof, the adopted street standards of the city shall apply in meeting any street requirements for land division approval, provided the city engineer has previously approved such standards. The land divider shall submit to the city engineer a street construction permit issued by the city approving the proposed street construction.
- N. Schedule "I" Parcel Map Division. Any division of land, where all parcels are not less than twenty (20) acres in gross area, shall be defined as a Schedule "I" parcel map division. The land divider may be required to provide soil percolation tests in conformity with city requirements and the regional water quality control board. No

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improvements are required on a Schedule "I" parcel map division, subject to the condition that an adequate circulation system is retained or replaced. If replaced, unless otherwise determined by the City Engineer, subdivision street improvements shall be constructed to full-width.

O. Drainage Fees.

1. This section is adopted pursuant to Sections 66483 et seq., of the Government Code which provides for the payment of fees for the construction of drainage facilities as a condition to the division of land.
2. Whenever land that is proposed to be divided lies within the boundaries of an area drainage plan, a drainage fee in the amount required by the plan for the area, as adopted or thereafter amended, shall be required as a condition of approval of the division of land in that drainage area.
3. Each area drainage plan as adopted, pursuant to the provision of Government Code Sections 66483 et seq., shall cover a particular drainage area; shall contain an estimate of the total cost of constructing the drainage facilities required by the plan, and include a map of the area that shows the boundaries of the drainage area and the location of the required facilities serving the drainage area. As a part of the adoption of a plan, the city shall find and determine that the subdivision and development of land within the plan area will require construction of the facilities described in the plan. The city shall further find and determine that the drainage fees are fairly apportioned within the local drainage area, on the basis of benefits conferred on property proposed for subdivision or on the land for local drainage facilities created by the proposed subdivision and development of other properties within the adopted drainage area, and may provide for varying fees; provided, however, the fee as to any property proposed for subdivision within a drainage area shall not exceed the pro rata share of the amount of the total actual or estimated cost of all facilities within the drainage area apportioned uniformly on a per acre basis.
4. Drainage fees shall be paid at the time of the filing of the final map or parcel map, or as a condition of the waiver of the filing of a parcel map; provided, however, at the option of the land divider the fee may be paid, in pro rata amounts, at the time of the issuance of grading permits for the approved parcels or at the time of issuance of building permits if no grading permits are issued for the parcels. The amount of the drainage fee required to be paid shall be the amount that is in effect for the particular area drainage plan at the time of actual payment of the fee. If the land divider elects to have payment made at the time of issuance of grading permits for the approved parcels or at the time of issuance of building permits if no grading permits are issued for the parcels, the amount of the drainage fee required to be paid shall be the amount that is in effect for the particular area drainage plan at the time of actual payment of the fee. If the land divider elects to have payment made at the time of issuance of a grading or building permit, the recorded final map or parcel map or certificate of compliance evidencing the waiver of the filing of a parcel map shall specifically state that payment of a drainage fee is required to be paid prior to issuance of a grading permit or

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- building permit for the parcels that have been created by the land divider. In addition, a separate instrument shall be recorded by the land divider in the office of the county recorder of Riverside County, at the time of the filing of the final map or parcel map, which gives notices that the drainage fee is required to be paid by any person owning such parcels prior to issuance of a grading or building permit, if a grading permit is not required.
5. If the drainage fee is paid at the time of filing of the final map or parcel map or certificate of compliance evidencing the waiver of the parcel map, it shall be paid to the Riverside County flood control district. If the drainage fee is paid at the time of issuance of a grading or building permit, it shall be paid to the Riverside County flood control district. All fees that are collected shall thereafter be deposited into a local drainage facilities fund maintained under the jurisdiction of the Riverside County flood control and water conservation district. A separate fund shall be established by the district for each adopted local drainage area. Money in such funds shall be expended for construction or reimbursement for construction, including acquisition of right-of-way necessary for construction, of the drainage facilities serving the drainage areas for which the fees are collected, or to reimburse the district for the cost of engineering and administrative services to design and construct and acquire any necessary right-of-way for the facilities.
 6. Under the direction of the city engineer, considerations such as dedications of right-of-way, actual construction, or design work by a civil engineer may be accepted in lieu of the payment of drainage fees, upon a determination that the alternative is acceptable and is equal to or greater in value than the required fee.
 7. Money may be advanced by the Riverside County flood control and water conservation district to design or construct drainage facilities or to acquire necessary right-of-way within an adopted drainage area; therefore, money so advanced may be reimbursed to the district from the fund for the local drainage area in which the facilities are located.
 8. When required for the implementation of an adopted area plan, an agreement may be entered into between a developer and the Riverside County flood control and water conservation district whereby the developer may advance money for the construction of facilities, or design or construct facilities within a local drainage area; provided that the sole security to the developer for repayment of money or other consideration advanced shall be for the amount agreed upon in advance only and shall not include interest or other charges. This agreement shall expire fifteen (15) years after the date it was entered into, and any subsequent money paid into the fund shall accrue to the fund without obligation to developers whose agreements have expired.
 9. The drainage plan area, the required facilities and the drainage fee in an adopted plan may be amended by the county board of supervisors at any time upon a determination that it is necessary to do so in order to correctly reflect the drainage area, the required facilities or estimated cost of the facilities.

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- P. Interchange and Bridge Construction Fees.
1. This section is adopted pursuant to Section 66484 of the Government Code which provides for the payment of fees to defray the actual or estimated costs for the construction of bridges and interchanges as identified in the circulation element of the general plan and as a condition of approval of a final map or as a condition of issuing a building permit.
 2. Whenever land that is proposed to be divided or for which a building permit is sought lies within the boundaries of an area of benefit, as hereinafter defined and established, a fee in the amount specified by the resolution establishing the area of benefit as adopted or thereafter amended, shall be required as a condition of approval and recordation of any final subdivision or parcel map or for the issuance of a building permit. No property shall be assessed a fee under this section for both a final map and a building permit.
 3. Setting the Matter For Public Hearing. The city council may, by resolution, set a public hearing at any time to determine whether an area of benefit is to be established and to designate the bridge and interchange(s) from fees collected from owners of real property within such area of benefit. The city clerk shall notify all owners of real property within the proposed boundaries of the area of benefit, as shown by the last equalized assessment roll of the county, of the time and place of the hearing at least twenty-one (21) days prior to the date of the hearing, by U.S. mail, postage prepaid, and by publication once in a newspaper of general circulation published in the city. Such notice shall contain information setting forth the proposed boundaries of the area of benefit, identifying the interchange(s) and/or bridge(s) to be constructed and the estimated cost of each, and setting forth the proposed method for equitably apportioning the fee amount to property owners.
 4. Public Hearing and Protest. At the public hearing the city council will consider the preliminary plan prepared by the city engineer that outlines the area to be included within the area of benefit, designates those bridge(s) and/or major interchange(s) to be constructed, the cost estimate with regard to each improvement, and the method of apportioning fees within the area of benefit. The city council will also consider testimony from interested persons, written protest and all relevant evidence submitted. All protests are to be in writing and may be filed with the city clerk at any time period or the close of the public hearing. Each protest may be filed by a person or entity owning property within the proposed boundaries of the proposed area of benefit and describe the property with sufficient specificity that the parcel may be identified. If the person or entity filing the protest is not shown on the latest equalized assessment roll as the owner of the parcel, the protest may contain or be accompanied by documentary evidence establishing ownership. A protest may be withdrawn in writing at any time prior to the conclusion of the public hearing. If written protests are filed with the city clerk from persons or entities owning more than fifty (50) percent of the land area to be included within the proposed area of benefit and, by the conclusion of the public hearing, a sufficient number of such protests have not been withdrawn so as to reduce the land area whose owners are

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protesting to less than fifty (50) percent, then all proceedings with regard to the area of benefit shall be abandoned and the city council shall not, for one year from the date of the hearing, commence or carry on any proceeding for the same improvement or area of benefit under the provisions of this section. If any majority protest is directed against only a portion of the designated improvement, then all further proceedings under the provisions of this section to construct that portion of the designated improvement so protested against shall be barred for a period of one year, but the city council shall not be barred from commencing new proceedings not including any part of the designated improvements or acquisition so protested against. The city council may, within a one-year period following a majority protest, commence new proceedings for the construction of the portion of the designated improvements so protested against, if it finds by the affirmative vote of four-fifths of its members, that the owners of more than one-half of the property to be benefitted are in favor of going forward with such portion of the designated improvements.

5. Establishment of Areas of Benefit. The city council, by resolution, within a reasonable time after the close of public hearing, may establish the area of benefit. Such resolution shall set forth the boundaries of the area of benefit, specify the designated improvements to be constructed, the cost, actual or estimated, for each of the designated improvements, and establish the fee schedule by which such cost is to be equitably apportioned among the parcels comprising the area of benefit. The decision of the city council represented by such resolution shall be final. A certified copy of such resolution shall be recorded in the office of the county recorder. The method of fee apportionment, in the case of major thoroughfares, shall not provide for higher fees on land which abuts the designated improvement except where the abutting property is provided direct usable access to the adjoining thoroughfare. The resolution establishing an area of benefit, may be amended from time to time by the city council to reflect modification in either the facilities to be constructed or the area to be included within the area of benefit due to alternation in land use and to reflect adjustments in the fee schedule necessitated by any amendment or increase in construction costs. Such amendments shall be adopted in the same manner as the original resolution. If the area of benefit includes lands not subject to the payment of fees, the city council shall make provisions for payment of the fees that would otherwise be chargeable to such lands from other sources. The designation of such alternative funding need not be addressed in the resolution establishing the area of benefit.
6. Payment of Fees.
 - a. Interchange improvement fees for areas of benefit shall be paid as follows:
 - i. Interchange improvement fees shall be paid to the city engineer prior to the recordation of a final subdivision or parcel map. If the recordation of a final parcel map is waived, road improvement fees shall be paid as a condition of the waiver

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- prior to recordation of a certificate of compliance evidencing the waiver of the final parcel map. The fees paid shall be based on the fee schedule in effect on date of payment;
- ii. At the option of the land divider, upon filing a required affidavit requesting deferment of the payment of fees, the road improvement fees shall be paid to the city engineer prior to issuance of a building permit for each approved parcel; however, should a building permit have been obtained or construction initiated by the land divider prior to the recordation of the final subdivision or parcel map or the receipt of a waiver to record a final parcel map, this option is not available to the land divider; and
 - iii. For any parcel or lot created prior to the adoption of the resolution establishing the area of benefit, road improvement fees shall be paid to the city engineer prior to the issuance of a building permit for any new construction on such parcel or lot that creates additional dwelling units or increases the value of nonresidential structures by more than one-half of their current market value, as determined by the community development director. All fees collected shall be deposited in a separate account designated for each area of benefit. Any fees once collected shall not be returned, except as reimbursement for the construction of designated improvements. Road improvement fees which are deferred to the time of issuance of a building permit shall be based upon the fee schedule in effect at the time of issuance of the permit.
- b. Nothing in this section is intended to relieve a subdivision or application for a building permit from the requirements imposed under other provision of this title or other city ordinances to dedicate and improve roads as a condition of approval of a tentative map or building permit.
 - c. Notwithstanding the provisions of subsection (P)(6) of this section, payment of fees shall not be required for the following:
 - i. An application for a building permit for the alteration or enlargement of any existing building or structure, or the erection of one or more buildings or structures accessory thereto, or both, on the same lot or parcel of land; provided, however, that the total value, as determined by the community development director; of all such alterations, enlargement or construction which is complete within any one-year period shall not exceed one-half of the current market value of the land, as determined by the community development director; or
 - ii. The following accessory buildings and structures: private garages, children's playhouses, radio and television receiving antennas, windmills, silos, tank houses, shops or barns or

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- buildings that are accessory to one-family or two-family dwellings; or
- iii. Outdoor advertising structures; or
 - iv. Wells.
- d. Notwithstanding the provision of subsection (P)(6) of this section, payment of fees shall not be required unless the designated interchange(s) are in addition to, or a reconstruction of any existing interchange(s) serving the area of benefit at the time of the adoption of the boundaries for the area of benefit.
 - e. Notwithstanding the provisions of subsection (P)(6) of this section, payment of fees shall not be required unless the designated bridge is an original bridge serving the area or an addition to any existing bridge facility serving the area of benefit. Fees imposed by this subsection shall not be expended to reimburse the cost of existing bridge facility construction.
7. Use of Funds.
- a. Fees shall be deposited in a designated bridge or interchange fund. A separate fund shall be established for each designated bridge or interchange project, provided, however if the area of benefit is one in which more than one bridge or interchange is required to be constructed, a fund may be established covering all of the bridge or interchange projects in the area of benefit. Moneys in such fund shall be expended solely for the construction or reimbursement for construction of the improvement serving the area to be benefitted and from which the fees comprising the fund were collected, or to reimburse the city for the cost of constructing the improvement.
 - b. The city may advance money from its general fund or road fund to pay the cost of constructing the designated bridge or interchange(s) and may reimburse the general fund or road fund for such advances from the bridge or interchange funds established pursuant to this section.
 - c. The city may incur an interest bearing indebtedness for the construction of a designated bridge or an interchange planned pursuant to this section; provided, that the sole security for repayment of such indebtedness shall be money in the specific fund established for that designated bridge or interchange.
 - d. At the discretion of the city council, considerations such as dedication of right-of-way, actual construction or design work by a civil engineer, may be accepted in lieu of the payment of fees, upon a determination that the alternative is acceptable and is equal to or greater in value than the required fee.
 - e. When required to implement the construction of a specific facility, a project agreement shall be entered into between a developer and the city whereby the developer may advance money for the construction of a facility, or design or construct a facility within the area of benefit; provided, that the sole security to the developer for repayment of

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money or other consideration advanced over and above his fair share shall be money subsequently accruing to the fund that has been established for the specific facility. Reimbursement shall be for the amount agreed upon in advance only and the right to reimbursement shall expire fifteen (15) years after the agreement was entered into, and any subsequent money paid into the fund shall accrue to the fund without obligation to developers whose agreements have expired.

8. Amendments. The resolution establishing an area of benefit may be amended by the city council as to boundaries of the area of benefit, the designation of facilities to be constructed or the estimated cost thereof, or any other aspect thereof, by following the same procedure required to establish an area of benefit.

Q. Park and Recreation Fees and Dedications.

1. This section is adopted pursuant to Section 66477 of the Government Code which provides for the dedication of land for park and recreational facilities as a condition of approval of a tentative map or parcel map.
2. Whenever land that is proposed to be divided for residential use lies within the boundaries of the city, the dedication of land may be required as a condition of approval of the division of land, as herein provided. The city shall have the option of requiring dedication of land for park purposes as a condition of approval of subdivisions of fifty (50) parcels or more. Such dedication shall be in lieu of park land impact mitigation fees.
3. It is found and determined by the city council that the public interest, convenience, health, welfare and safety requires that five acres of land for each one thousand (1,000) persons residing within the city shall be devoted to neighborhood and community park and recreational facilities, based upon the determination by the city council that the amount of existing neighborhood and community park areas, as calculated pursuant to Government Code Section 66477, exceeds the limit set forth therein, and the calculated amount of five acres per one thousand (1,000) persons residing within a subdivision subject to this section is established. No credit shall be given to a subdivider for provision of private open space, private parks, private recreational areas, landscaped setbacks or landscaped road dividers within or adjacent to the proposed subdivision.
4. Exemptions. This section shall not apply to the following land divisions:
 - a. Commercial or industrial;
 - b. Condominium projects or stock cooperatives which consist of the subdivision of airspace in an existing apartment building which is more than five years old and as to which no new dwelling units have been added by the subdivision;
 - c. Subdivisions containing less than five parcels and not used for residential purposes; provided, however, that a condition of approval shall be placed on those maps that if a building permit is requested for the construction of a residential structure or structures on one or more of the parcels within four years after recordation of the

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subdivision map, the park land impact mitigation fees shall be required to be paid by the owner of each parcel as a condition to issuance of such permit.

5. Dedication Requirements of Subdividers.
 - a. Whenever a tentative tract map which is subject to the provisions of this section is submitted to the community development director, it shall be accompanied by a written statement from the applicant stating whether it is intended to dedicate land for park and recreational purposes. If the developer desires to dedicate land for this purpose, he shall first consult with the community development director and parks and recreation director as to the appropriate area to be dedicated, and such area shall be shown on the proposed tentative tract map as submitted. All dedications must be approved and accepted by the city council.
 - b. The conditions of approval of a tentative tract map subject to the provisions of this section shall require the dedication of land for park and recreational purposes. If land is to be dedicated, the proposed dedication shall be shown on the approved tentative map.
 - c. The amount and location of property to be dedicated shall be recommended by the parks and recreation director and determined by the city council.
 - d. All dedications of land shall be in accordance with the Subdivision Map Act. Land shall be conveyed in fee simple to the city by grant deed free and clear of all encumbrances, except those which will not interfere with the use of the property for its intended purposes and which the city agrees to accept. All deeds shall be delivered to the city before the approval of the final map. If the final map is disapproved, or if it is withdrawn by the subdivider, the deeds shall be returned to the subdivider. If the final map is approved, the deeds shall be recorded by the city at the time the final map is recorded. No deed for the dedication of land shall be accepted unless it is accompanied by a policy of title insurance, secured by and at the expense of the subdivider, in an amount equal to the value of the land dedicated.
 - e. Whenever land has been conveyed to the city and a final map is not recorded, or, if recorded, the land is thereafter reverted to acreage, the city shall, at its option, either reconvey all land dedicated to it, allow the developer a credit for any land dedicated to be applied only to a new subdivision on the same property, or make other arrangements with the subdivider.
6. Determination of Land Dedication. When the conditions of approval for a land division require the dedication of land, the conditions shall be based on the following:
 - a. The natural features of the area; available access; the location, size and shape of the subdivision; the location, size and shape of the land available for dedication; the feasibility of dedication; the location of

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- existing and proposed park sites and trailways; and the compatibility of dedication with the city general plan;
- b. Whenever the actual amount of land to be dedicated is less than the amount of land required to be dedicated, the subdivider shall pay park land impact mitigation fees for the value of any additional land that otherwise would have been required to be dedicated;
 - c. The amount and location of the land to be dedicated shall bear a reasonable relationship to the use of the park and recreational facilities by the future inhabitants of the subdivision;
 - d. The amount of land to be dedicated shall be based on the residential density of the subdivision. The residential density shall be determined by multiplying the number of dwelling units of the subdivision by the average number of persons per unit by the ratio which the number of acres of park land required for each one thousand (1,000) persons bears to one thousand (1,000) (i.e., .005). The average number of persons per unit shall be the most recent such average established by the Department of Finance of the state of California;
 - e. Whenever land is dedicated pursuant to this section, the subdivider shall, without credit and without cost to the city, provide the following for the benefit of the land dedicated:
 - i. Full street improvements and utility connections, including, but not limited to, curbs, gutters, relocation or undergrounding of existing public utility facilities, street paving, traffic control devices, street trees and sidewalks to the dedicated land;
 - ii. Block wall fencing along the property lines of the subdivision which are contiguous to the park;
 - iii. Improve the drainage through the park site;
 - iv. Provide minimal physical improvements, not including recreational facilities, building or equipment, which the parks and recreation director determines are necessary for acceptance of the land for park and recreational purposes;
 - v. Provide access from the park and recreational facilities to an existing or proposed public street, unless the parks and recreation director determines that such access is unnecessary for maintenance of the park area or use of the park by the residents of the area;
 - vi. Grading and drainage improvements, and irrigation and planting improvements, as required under applicable city ordinances. All land to be dedicated and improvements to be made shall be approved by the city prior to the approval or disapproval of a subdivision by the city;
 - vii. All grading plans for land to be dedicated shall be reviewed and approved by the parks and recreation director for conformance with the city parks and recreation plan and the needs of the city;

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- viii. No grading, drainage, irrigation, planting, street or utility improvements required under this section shall be eligible for a credit against the land to be dedicated; however, park and recreational improvements to a dedicated park land shall be a credit against the required dedication.
- f. Land which has been dedicated and accepted may be sold by the city if the subdivider has not begun substantial construction on the subdivision within two years after recordation of the final map and the city determines that another site would be more suitable for park or recreational facilities. The proceeds from the sale of the dedicated land must be used for the purpose or improvement of the more suitable site.

Article IV. Applications for Hillside Development Permit

9.16.170 Generally.

Hillside development can offer opportunities for spectacular views from building sites around the valley’s perimeter. It is important, however, to ensure that all are protected when designing hillside building sites. The guidelines in this section apply to the hillside areas illustrated in the general plan and official zoning atlas. Applicant’s compliance with this chapter shall be reviewed during the planning application review process for any entitlements subject to this chapter. No separate planning application or fee is required for hillside development projects.

Attachment: Ordinance XXXX [Revision 1] (6454 : 2023 Winter Omnibus)



Report to City Council

TO: Mayor and City Council

FROM: Brian Mohan, Assistant City Manager

AGENDA DATE: December 5, 2023

TITLE: PUBLIC HEARING FOR THE ANNUAL ACTION PLAN FOR PROGRAM YEAR 2024-2025 AND TO ADOPT 2024-2025 OBJECTIVES AND POLICIES

RECOMMENDED ACTION

Recommendations: That the City Council:

1. Conduct a Public Hearing to allow for the public to comment on the needs of low- and moderate-income residents in Moreno Valley.
2. Approve the proposed CDBG, HOME, and ESG Grant Objectives and Policies for the 2024-2025 Program Year.

SUMMARY

Every year, the Department of Housing and Urban Development (HUD) allocates federal grant monies to the City of Moreno Valley known as the Community Development Block Grant (CDBG), the HOME Investment Partnerships Program (HOME), and the Emergency Solutions Grants (ESG) Program. These grants are used to provide services to benefit low- and moderate-income persons. (See Attachment 2 for the most recent income levels). Eligible CDBG activities range from social services to capital improvements. HOME funds must be used toward the development of affordable housing programs, and ESG funds are used to assist people with housing stability and homelessness. HUD requires that cities concentrate their programs in areas determined to contain residents of which at least 51% earn low-to moderate-incomes. These areas are referred to as 'CDBG Target Areas'. (See Attachment 3 for a map of Moreno Valley's HUD Low-Mod Census Tracts/Blocks.)

As a condition for receiving Federal funding under the CDBG, HOME, and ESG

Programs, grantee cities must prepare an Annual Action Plan consistent with the 2023- 2028 Consolidated Plan as adopted May 16, 2023 (Consolidated Plan). The City will conduct two public hearings and a 30-day comment period to allow for public input in the development of these documents. The City Council is asked to open the PUBLIC HEARING to discuss and adopt Objectives/Policies and Collect Community Needs Comments. The Plan will address housing, homeless, and community development needs to be undertaken with federal funds under the CDBG, HOME, and ESG programs.

DISCUSSION

Consolidated Plan

The Consolidated Plan identifies the housing and community development needs of the City's low-and moderate-income community, as defined by HUD, and establishes the City's HUD-funded strategies for addressing these needs for a five-year period. It serves as the official application to HUD for the CDBG, HOME, and ESG Programs. Moreno Valley's existing Consolidated Plan was adopted in FY 2023-2024 and is in effect through the end of FY 2027-2028, June 30, 2028. Program Year 2024-2025 is the second year of the current Consolidated Plan.

The goals and priorities for each category in the 2023-2028 Consolidated Plan are listed below:

- CDBG Housing and Community Development Goals & Funding Priorities
 1. Public Facilities and Infrastructure Activities
 2. Fair Housing Activities
 3. Public Service Activities*
 4. Homeless/Homelessness Prevention Activities
 5. Housing and Neighborhood Improvement Activities
 6. Health, Safety and Public Welfare
 7. Economic Development Activities
 8. Slum or Blight Activities
 9. Historic Preservation
 10. Planning and Administration
- CDBG Public Service Funding Priorities*
 1. Basic Needs Related to Social Services Programs (such as, but not limited to emergency food, shelter (homelessness), abused children advocacy, and utility assistance)
 2. Community Public Safety Programs
 3. Programs Offering Low-Cost Transportation
 4. Employment Services/Programs and Job (Skills) Training
 5. Free/Low-Cost Programs for School-Aged Youth
 6. Fair Housing Activities

- HOME Investment Partnerships Program (HOME) Funding Priorities
 1. Housing and Neighborhood Improvement Activities
- Emergency Solutions Grants (ESG) Program Funding Priorities
 1. Sheltering Homeless/Homeless Prevention Activities

Annual Action Plan

For each fiscal year represented within the 2023-2028 Consolidated Plan, entitlement cities must adopt a separate planning document called the Annual Action Plan. The Annual Action Plan identifies how the City will allocate CDBG, HOME, and ESG funds for the upcoming year while meeting the goals established in the Consolidated Plan. Each Annual Action Plan must include up-to-date Objectives and Policies for CDBG, HOME, and ESG Programs.

Prior to submittal of the FY 2024-2025 Annual Action Plan, the City will complete a series of sequential activities including three City Council meetings to:

1. Adopt current fiscal year Objectives and Policies,
2. Recommend CDBG, HOME and ESG Project Selections to Council, and
3. Adopt the program year Annual Action Plan.

An eligible use of CDBG monies is 'Public Services'. Public Services can include but not limited to food banks, homeless shelters, specialized counseling, foster youth services, and a variety of other services that benefit the City's low-to moderate-income households. HUD limits the monies that can be used toward Public Services to 15% of the overall annual CDBG allocation, which for Moreno Valley averages approximately \$1,900,000 per year. Because Public Service monies are limited and the demand is so high, staff has established a priority ranking within this objective category that assists in reaching decisions on which programs are best suited for the community within a given fiscal year.

After comprehensive research, including consideration of public input and review of various program reports, including those provided by the City's local non-profits currently serving the City's low-and moderate-income population, staff recommends the following priority ranking under the Public Service Objective:

1. 'Basic Needs' Related Social Services Programs such as, but not limited to, emergency food and shelter (homelessness), abused children advocacy, and utility assistance
2. Community Public Safety Programs
3. Programs offering Low-Cost Transportation
4. Employment Services/Programs and Job (Skills) Training
5. Free/Low-Cost programs for School-Aged Youth

6. Fair Housing Activities

Public Engagement

Citizen participation is one of the most important components of the Annual Action Plan process. To solicit public input during the development of the plans, two public hearings and a 30-day comment period will be administered. Before the City can begin the project selection process for CDBG, HOME, and ESG, HUD requires the City to complete a mandatory 'Citizen Participation Process' and adopt objectives and policies that reflect the current needs of the community.

Moreno Valley's 'Citizen Participation Process'

The 'Citizen Participation Process' is intended to encourage active and informed participation in the CDBG, HOME, and ESG Programs by the community. Each year as part of this process, Moreno Valley holds community-based Public Meetings and Public Hearings to receive input on the current needs of its low-to moderate-income residents. Attendees are asked to comment on issues and problems affecting low-to moderate-income people so that the City can make informed funding decisions.

Comments received at these meetings are taken into consideration when forming the Objectives and Policies for the program year.

<u>Preliminary Dates</u>	<u>Event</u>
Tuesday, November 28, 2023	Public Meeting 1: Finance Subcommittee to Review Action Plan Calendar and FY 2024-25 Objectives/Policies
Tuesday, December 5, 2023	Public Hearing 1: Public Hearing to Adopt FY 2024-25 Objectives/Policies & Collect Community Needs Comments
Friday, December 15, 2023	Notice of Funding Availability (NOFA) Available. APPLICATIONS AVAILABLE FOR DISTRIBUTION.
Thursday, January 4, 2024	Application Workshop
Wednesday, January 31, 2024	Applications Due from Applicants
Tuesday, March 26, 2024	Public Meeting 2: Open Technical Review Committee during Finance Subcommittee Meeting
Tuesday, April 16, 2024	Public Hearing 2: Public Hearing to Review Project Recommendations as issued by the Finance Subcommittee
Tuesday, May 7, 2024	Public Hearing 3: Approve Annual Action Plan
Tuesday, May 14, 2024	Submittal of 2024-25 Action Plan to HUD

Purpose of Objectives and Policies

In accordance with HUD's requirements, Moreno Valley's Objectives and Policies must be re-evaluated each year to ensure they adequately reflect the current needs of the community. The updated Objectives and Policies must then be adopted by the City Council for the upcoming CDBG, HOME, and ESG program year. Objectives and Policies primarily focus on: (1) defining the City's funding priorities, (2) offering project selection criteria, and (3) providing guidance for staff when reviewing and recommending programs and projects for funding. Both are distributed to non-profit agencies who are interested in applying for funding to develop a local social service program in Moreno Valley and convey important information about the eligible categories of programs and the City's priorities for local organizations.

30-Day Public Comment Period

In accordance with the City's Citizen Participation Plan (Attachment 4), the City will release the draft 2024-2025 Annual Action Plan for public comment. The documents will be made available to the public for a 30-day review and comment period beginning on March 22, 2024 and ending on May 7, 2024.

ALTERNATIVES

The City Council has the following alternatives:

1. City Council may conduct a Public Hearing, receive comments, and adopt the proposed CDBG, HOME, and ESG Objectives and Policies as listed on Attachment 1. Staff recommends this alternative as doing so will meet HUD's requirements, as well as provide the public and staff with direction regarding funding proposals for FY 2024-2025.
2. City Council may choose not to adopt the proposed CDBG, ESG, and HOME Objectives and Policies as listed on Attachment 1. Staff does not recommend this alternative because it would delay the necessary measures to meet HUD's established deadline for submission of these documents.

FISCAL IMPACT

The City, as an entitlement city for CDBG, HOME, and ESG funds, receives grant funds every year to carry out eligible housing and community development activities. Further, staffing costs for administering the CDBG, HOME, and ESG programs are covered by an administration cap within each program. No General Fund money is used for the CDBG, HOME, or ESG programs; therefore, there is **NO FISCAL IMPACT TO THE GENERAL FUND.**

NOTIFICATION

Notice of this meeting was published in the local edition of the Press-Enterprise and La Prensa newspapers on November 10, 2023.

PREPARATION OF STAFF REPORT

Prepared By:
Viviana McDaniel
Grants Division Manager

Department Head Approval:
Brian Mohan
Assistant City Manager

CITY COUNCIL GOALS

None

CITY COUNCIL STRATEGIC PRIORITIES

- 1. Economic Development
- 2. Public Safety
- 3. Library
- 4. Infrastructure
- 5. Beautification, Community Engagement, and Quality of Life
- 6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”



on the left hand side of this document for the necessary attachment.

- 1. FY 24-25 Objectives and Policies DRAFT
- 2. 2023 Annual Income Limits Summary
- 3. CDBG HUD Target Areas for Reference
- 4. FY 24-25 Citizen Participation Plan

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/27/23 4:23 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/27/23 4:24 PM

City of Moreno Valley

Community Development Block Grant (CDBG), HOME Investment Partnerships Program (HOME) & Emergency Service Grant (ESG)

Objectives and Policies FY 2024-2025

The City of Moreno Valley (“City”) has established the following Objectives and Policies to give maximum priority to projects and activities that will benefit low-to-moderate income residents. Proposed programs for the upcoming year should fit into one of the categories of Program Objectives.

The Housing and Urban Development (“HUD”) CDBG programs must also fit into one of the listed National Objectives. Staff will abide to the given policies when reviewing proposed programs for potential funding.

CDBG NATIONAL OBJECTIVES

For an activity or program to be eligible for CDBG funding, it must qualify as meeting one or more of the following three national objectives *as well as* one of the general program objectives below:

- 1) **Activities Benefiting Low- and Moderate-income Persons and/or Households:**
A low-to-moderate income person or household is one having an income equal to or less than the Section 8 lower income limits established by HUD. This objective includes direct services to the low-to-moderate income, services benefiting a low-income area, or ‘limited clientele’, who are designated groups presumed by HUD to automatically qualify as low-to-moderate income.
- 2) **Activities Which Aid in the Prevention or Elimination of Slums or Blight:**
This objective can be achieved on a spot basis, area basis, or address blight in a designated urban renewal area.
- 3) **Activities Designed to Meet Community Development Needs Having a Particular Urgency:** This objective is given priority under formally declared state of emergencies and is normally used to alleviate urgent conditions caused by major catastrophes, natural disasters, or other emergencies that presents a serious and immediate threat to the health and welfare of the community.

ESG COMPONENTS

ESG funding must qualify as meeting a component that will assist, protect, and improve living conditions for the homeless.

- 1) **Street Outreach**: Meet the immediate needs of unsheltered homeless people by connecting them with emergency shelter, housing, and/or critical health services.
- 2) **Emergency Shelter**: Increase the quantity and quality of temporary shelters provided to homeless people, through the renovation of existing shelters or conversion of buildings to shelters, paying for the operating costs of shelters, and providing essential services.
- 3) **Rapid Re-Housing**: Move homeless people quickly to permanent housing through housing relocation and stabilization services and short- and/or medium-term rental assistance.
- 4) **Homelessness Prevention**: Prevent an individual or family from moving into an emergency shelter or living in a public or private place not meant for humans through housing relocation and stabilization services and short- and/or medium-term rental assistance.
- 5) **Homeless Management Information System (HMIS)**: Fund ESG recipients' and subrecipients' participation in the HMIS collection and analyses of data on individuals and families who are homeless and at-risk of homelessness.

HOME ELIGIBLE ACTIVITIES

HOME funds are to develop and support the supply of affordable rental housing and homeownership affordability through acquisition, new construction, reconstruction, or rehabilitation of non-luxury housing (including manufactured housing).

- Acquisition of vacant land or demolition must be undertaken only with respect to a particular housing project intended to provide affordable housing.
- Conversion of an existing structure to affordable housing is rehabilitation, unless the conversion entails adding one or more units beyond the existing walls, in which case, the project is new construction for purposes of this part.

GENERAL PROGRAM OBJECTIVES

(listed alphabetically)

Capital Improvement Activities (CDBG)

Acquisition, design, construction, and installation of needed public facilities and improvements located in CDBG income eligible Census Tracts (“Target Areas”) within the City where infrastructure is missing or substandard. Public facilities and improvements may include the Americans with Disabilities Act (ADA) compliant ramps and sidewalk improvements, storm drains, and water and sewer lines. Improvements shall facilitate pedestrian activity, eliminate flooding, and provide for safer streets within the Target Areas.

Economic Development Activities (CDBG)

Expanded economic opportunities through micro-enterprise loan programs and counseling as well as employment and job skills programs to create and retain jobs for low-and-moderate persons.

Fair Housing Activities (CDBG)

The promotion of housing choice and support of state and federal fair housing laws to ensure that all residents have access to a decent home in a suitable living environment in the City. Fair Housing activities are met by promoting and affirmatively furthering equitable housing opportunities through education, counseling, enforcement, and training.

This objective also includes the prevention of foreclosure through counseling, mediation, and case management for homeowners facing mortgage delinquency, default, or any stage of foreclosure, thereby maintaining safe, stable neighborhoods and community.

Health, Safety, and Public Welfare

Eliminating conditions that are detrimental to health, safety, and public welfare through interim rehabilitation, community policing, abused child advocacy services, etc.

Historic Preservation (CDBG)

Restoring and preserving properties formally designated as historic structures.

Homelessness/Homeless Prevention Activities (ESG)

Improve the quality of life for the city’s homeless and those threatened with homelessness by extending emergency services aimed at assisting, protecting,

and improving the living conditions and ultimately stabilizing the housing situation of those individual(s).

Housing and Neighborhood Improvement Activities (CDBG and HOME)

Conserving and improving housing stock through rehabilitation of units occupied by low-and-moderate income households. Activities are designed to: (1) improve existing substandard or deteriorated housing stock that does not meet building, safety, or fire code and (2) achieve the goals identified in the City's Consolidated Plan.

Public Service Activities (CDBG)

Improving the quantity and quality of public services, principally for low-and-moderate income persons, including the homeless, elderly, and disabled. The following services are identified by order of priority:

- (1) 'Basic Needs' Related Social Services Programs such as, but not limited to, emergency food and shelter (homelessness), abused children advocacy and utility assistance
- (2) Community Public Safety Programs
- (3) Programs offering Low-Cost Transportation
- (4) Employment Services/Programs and Job (Skills) Training
- (5) Free/Low-Cost programs for School-Aged Youth
- (6) Fair Housing Activities

Slum or Blight Activities (CDBG)

Elimination of slums and blight in order to prevent the deterioration of City neighborhoods, principally in the CDBG Target Areas.

Planning and Administration (CDBG, ESG, HOME)

Overall program management, coordination, monitoring, and evaluation of projects funded by CDBG, ESG, and HOME funds.

POLICIES

In order to meet the objectives and ensure efficient use of CDBG, HOME, and ESG funds, the following policies have been established:

City Projects and Programs

Certain public improvements, such as storm drains, curb, gutter, and sidewalks that provide long-term benefits to improve low-and-moderate income CDBG Target Areas may at the Council's discretion be given priority. Additional examples of these City sponsored programs include Community Policing and Neighborhood Clean-ups.

Provider Collaboration

Providers (local non-profits) that intend to provide similar services and programs to Moreno Valley's low-and-moderate residents shall be given funding priority for combining resources and efforts into a single program. Providers should complete and submit a single CDBG, ESG and/or HOME application on behalf of the collaborating group. Funding priority would be given at the time of the application review based on critical factors such as goals and service area/persons benefited that align with those of the City's, prior accomplishments with similar grant programs for the City, completeness of the application, organizational and technical competency, etc.

Local Services

Providers that are in the City will be given funding priority when they are providing services equivalent to those offered by providers located outside the City.

The goal is to have services available and accessible within the City limits to serve all residents, especially those of low-and-moderate income. Prior to final selection of projects, other factors such as record of accomplishments and experience may also be considered.

Minimum Grant Level

A minimum grant level of \$15,000 for CDBG, \$25,000 for HOME, and \$50,000 for ESG (excluding Homelessness Management Information Systems) has been established for the purpose of ensuring the most efficient use of these funds.

Project and Program Funding

Pre-existing Projects and Programs having other funding sources will be given priority. Grant funding is intended to supplement a project or a program and not be its full and only funding source.

Federal funding varies from year to year, as do the needs of the community. Therefore, it is important for a project or program to sustain itself should City funding not be available. Such an approach will also provide for the maximum leveraging and impact.

Minimal Applicant Requirements

To ensure an applicant is adequately qualified to administer an activity per the federal statutes and regulations, a set of minimal applicant requirements shall be established for inclusion in the grant application. The requirements shall be reasonable and comply with HUD regulations and best practice recommendations. It is preferred that an applicant have a minimum of three years of successful grant management experience. This may be supported by written documentation, for example, unqualified audit opinion letter.

Multi-Year Agreements

The City shall execute a standard subrecipient agreement and offer the possibility of multi-year agreements when deemed reasonable. Extensions shall be issued only in instances where funding and time restrictions allow.

ESG Match Requirements

Federal regulations require a 100% match for the ESG program. The City shall require the subrecipient to be responsible for the full match. The match may be met with a combination of cash or in-kind services. Additionally, HUD regulations allow for the match to come from other grant sources.

Proof of 100% match is required prior to a notice to proceed and the execution of a contract with the City. Initial documentation of proof of match shall be provided with the application for evaluation. Final verifiable third-party documentation providing proof of award and availability of funds shall be provided before entering into an agreement with the City. If proof of award cannot be provided, then any award of ESG funds will be adjusted as necessary based on the available verified match.

Program Costs

The City must ensure that all costs charged to the grants are allowable, allocable, and reasonable for the proper performance and administration of the award. Direct and indirect project costs should be reasonable relative to the total costs of the project/program. An approved indirect cost rate must be provided to recover indirect costs.

CITY OF MORENO VALLEY

2023 ADJUSTED INCOME LIMITS

Revised Annually by the Department of Housing and Urban Development (HUD)

Annual Income Level	Number of Persons in Household							
	1	2	3	4	5	6	7	8
EXTREMELY LOW INCOME (30%)	\$19,600	\$22,400	\$25,200	\$30,000	\$35,140	\$40,280	\$45,240	\$50,560
VERY LOW INCOME (50%)	\$32,650	\$37,300	\$41,950	\$46,600	\$50,350	\$54,100	\$57,800	\$61,550
LOW-MOD INCOME (80%)	\$52,200	\$59,650	\$67,100	\$74,550	\$80,550	\$86,550	\$92,450	\$98,450

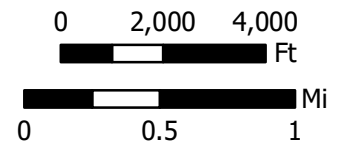
Source: <https://www.hudexchange.info/resource/5334/cdbg-income-limits/>

Attachment: 2023 Annual Income Limits Summary (6453 : PUBLIC HEARING FOR THE ANNUAL ACTION PLAN FOR PROGRAM YEAR 2024-

City of Moreno Valley HUD Low-Mod Censu Tracts/Blocks 2023

Effective Date: July 1, 2023
Note: Subject to update by HUD

 HUD Low-Mod Tracts/BlkGrps

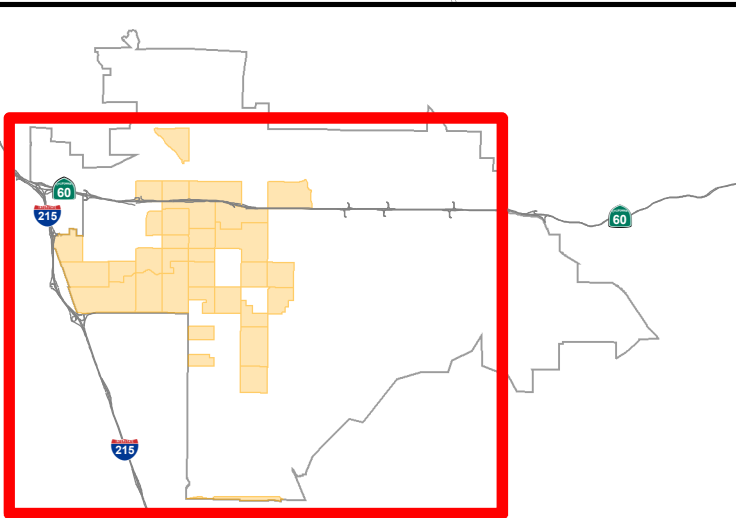
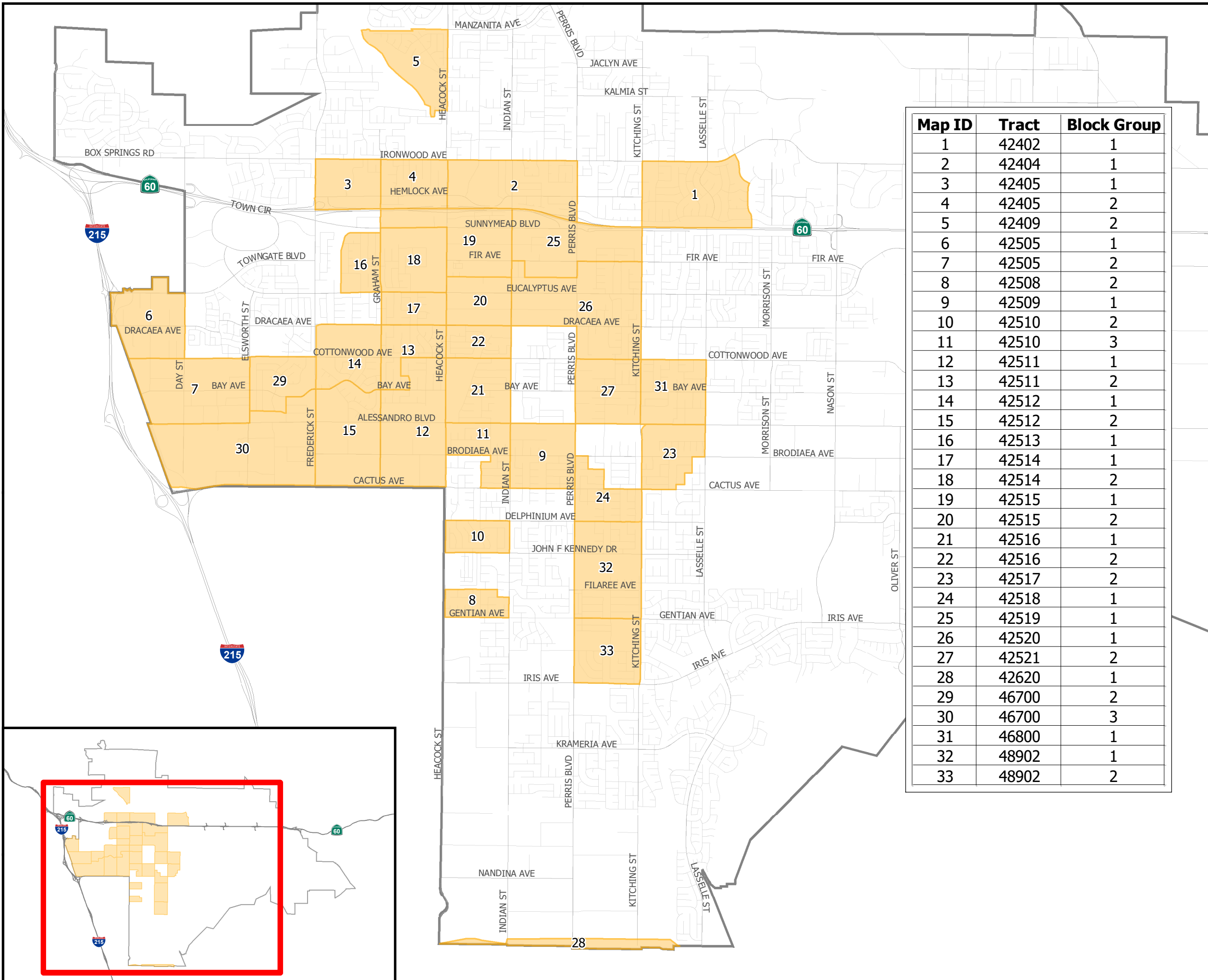


Map Produced by Moreno Valley Geographic Information System
Geographic Information in:
State Plane NAD 83 California Zone 6 Feet
G:\Divisions\Finance\2022\MXD\CDBG_HUD_Tracts111722B.mxd
21 November 2022

The information shown on this map was compiled from the Riverside County GIS and the City of Moreno Valley GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map



Map ID	Tract	Block Group
1	42402	1
2	42404	1
3	42405	1
4	42405	2
5	42409	2
6	42505	1
7	42505	2
8	42508	2
9	42509	1
10	42510	2
11	42510	3
12	42511	1
13	42511	2
14	42512	1
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18	42514	2
19	42515	1
20	42515	2
21	42516	1
22	42516	2
23	42517	2
24	42518	1
25	42519	1
26	42520	1
27	42521	2
28	42620	1
29	46700	2
30	46700	3
31	46800	1
32	48902	1
33	48902	2



Attachment: CDBG HUD Target Areas for Reference (6453 : PUBLIC HEARING FOR THE ANNUAL ACTION PLAN FOR PROGRAM YEAR 2024-



FISCAL YEAR 2024/25
CITIZEN PARTICIPATION PLAN

City of Moreno Valley
Grants Division
14177 Frederick St. PO Box 88005
Moreno Valley, CA 92552-0805

FISCAL YEAR 2024/25 CITIZEN PARTICIPATION

**COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG)
HOME INVESTMENT PARTNERSHIPS (HOME) PROGRAM
EMERGENCY SOLUTIONS GRANTS (ESG) PROGRAM**

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Attachment: FY 24-25 Citizen Participation Plan (6453 : PUBLIC HEARING FOR THE ANNUAL ACTION PLAN FOR PROGRAM YEAR 2024-2025

**CITY OF MORENO VALLEY
CONSOLIDATED PLAN 2023-2028**

CITIZEN PARTICIPATION PLAN

INTRODUCTION

The City of Moreno Valley is required by law to have a detailed Citizen Participation Plan which contains the City's policies and procedures for public involvement in the Consolidated Plan process and the use of CDBG, HOME, and ESG funds. The Moreno Valley Citizen Participation Plan was developed pursuant to the U.S. Department of Housing and Urban Development (HUD), Consolidated Submission for Community Planning and Development Programs, as required under 24CFR Part 91 and Part 8. The Citizen Participation Plan provides the method and process by which the City of Moreno Valley will encourage citizen participation in the development of its Consolidated Plan. Through this plan, citizens will be afforded the opportunity to provide input regarding housing and community development needs, issues and problems affecting low-and moderate-income persons, the development of strategies, project selections and funding distributions.

CARES Act provisions responding to COVID-19 pandemic

The *Coronavirus Aid, Relief, and Economic Security Act* (CARES Act), Public Law 116- 136, was signed by President Trump on March 27, 2020, and made available \$5 billion in U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant Coronavirus (CDBG-CV) funds and \$1 billion in Emergency Solutions Grants Program Coronavirus funds (ESG-CV) to prevent, prepare for, and respond to the coronavirus (COVID-19). Of this amount, HUD immediately allocated \$2 billion of CDBG- CV funds and \$1 billion in ESG-CV funds based on the fiscal year 2020 entitlement formula.

In addition, HUD granted certain waivers regarding public noticing and the public comment period normally required in a recipient agency's Citizen Participation Plan for Substantial Amendments in order to accelerate the implementation of selected eligible activities for the CDBG-CV and ESG-CV funds and to quickly respond to the growing spread and effects of COVID-19. The City has notified HUD of its selection of two of the waivers as further explained below under *D. Amendments to the Annual Action Plan*.

Encouraging Public Participation

The law requires that the City's Citizen Participation Plan both provide for and encourage public participation, emphasizing involvement by low and moderate-income people, especially those living in low-and moderate-income neighborhoods. Also, HUD expects the City to take whatever actions are appropriate to encourage the participation of minorities, people who do not speak English, and people with disabilities.

The City also maintains a distribution list of persons, agencies, and organizations that have

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

expressed interest in the City’s CDBG, HOME, and ESG programs. Notifications of events, such as the Community Needs Assessment meetings, are e-mailed directly to those on the distribution list to encourage public participation.

The Role of Low-Income People

The law declares that the primary purpose of the programs covered by this Citizen Participation Plan is to improve communities by providing decent housing, a suitable living environment, and growing economic opportunities – all for principally low and moderate-income people.

The City of Moreno Valley will provide the Riverside County Public Housing Authority with a copy of all Public Notices that are published during the Consolidated Plan process. The City encourages input from residents of public housing developments and via the Public Housing Authority; residents are notified of Community Needs Meetings as well as Public Hearings.

Because the amount of federal CDBG, HOME, and ESG money the City receives each year is mostly based upon the severity of both poverty and substandard housing conditions in the City, it is necessary that public participation genuinely involve low-income residents who experience these conditions. Genuine involvement by low-income people must take place at all stages of the process, including:

- Identifying needs.
- Setting priorities among identified needs.
- Deciding how much money should be allocated to each high-priority need and suggesting the types of programs to meet high-priority needs.
- Overseeing the way in which programs are carried out.

The Various Stages of the Consolidated Plan Process

The policies and procedures in this Citizen Participation Plan relate to several stages of action mentioned in law or regulation. In general, these stages or events include:

1. Identification of community and housing needs via a Public Hearing(s)
2. Preparation of a draft use of funds for the upcoming year, called the Proposed Annual Action Plan (Public Hearing required)
3. Formal approval by the City Council of the Final Annual Action Plan (via a Public Hearing)
4. In the case where it is necessary to change the use of money already budgeted in an Action Plan or change priorities, a Substantial Amendment will be proposed (completed via Public Hearing)
5. After the program year is complete, a Consolidated Annual Performance and Evaluation Report (CAPER) is drafted for public review and comment and then submitted to HUD.

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

The Program Year

The program year for Moreno Valley coincides with the City’s fiscal year running from July 1st through June 30th.

PUBLIC NOTICES

Items Covered by the Public Notice Requirement

Advance public notice is provided once a federally required document is available for public review and comment, such as the Annual Action Plan or Consolidated Plan. In addition, advance public notice of all Public Hearings and public meetings is provided at least two weeks in advance of the public hearing.

Public Notice Schedule

Notices give residents a clear understanding of the event being announced. The following is a general timeline of when public notices are published:

<i>October/November</i>	Notice of Community Needs Meetings/Public Hearings
<i>October/November</i>	Notice of Public Hearing to Identify Community Needs
<i>December</i>	Notice of Funding Availability and Application Process
<i>March</i>	Notice of Public Hearing to Discuss Proposed Action Plan
<i>March</i>	Notice of Action Plan Availability for Public Review
<i>March</i>	Notice of Public Hearing to Adopt Final Action Plan
<i>As Needed</i>	Notice of Availability of Amendment to Consolidated/Action Plan
<i>As Needed</i>	Notice of Public Hearing to Amend Consolidated/Action Plan

Forms of Public Notice

Public notices are published in the Press-Enterprise and La Prensa Newspaper as display advertisements in the non-legal section of the local edition. A copy of the public notice will be sent to any person or organization requesting to be on the mailing list.

PUBLIC ACCESS TO INFORMATION

As required by law, the City will provide the public with reasonable and timely access to information and records relating to the data or content of the Consolidated Plan, as well as the proposed, actual, and past use of funds covered by the Citizen Participation Plan. Regarding the past use of funds, the law requires reasonable public access to records about any uses of these funds during the previous five years. Also, the City will provide the public with reasonable and timely access to local meetings relating to the proposed or actual use of funds.

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

Standard documents that are available for public comments include:

- The proposed and final Annual Action Plan
- The proposed and final Five-Year Consolidated Plan (CONPLAN)
- Proposed and final Substantial Amendments to either an Annual Action Plan or the Five-Year Consolidated Plan
- Consolidated Annual Performance and Evaluation Report (CAPER)
- Citizen Participation Plan

Availability of Standard Documents

All documents are available for immediate public review at City Hall in the Grants Division. Copies of standard documents that are not currently posted for public review will be provided to the public within five working days of the request at no cost. Copies of draft documents such as the Annual Action Plan and CAPER may be viewed at the City’s public website and copies may also be requested from staff at the following locations:

Moreno Valley City Hall
14177 Frederick St.
Moreno Valley, CA 92553

Moreno Valley Conference & Recreation Center
14075 Frederick St.
Moreno Valley, CA 92553

Moreno Valley Public Library
25480 Alessandro Blvd.
Moreno Valley, CA 92553

Moreno Valley Senior Center
25075 Fir Ave.
Moreno Valley, CA 92553

Documents may be requested for the entire required review time that is specified in the applicable public notice. All final documents are available for public review at City Hall during normal business hours.

PUBLIC HEARINGS

Public Hearings are required by law to obtain the public’s views and to provide the public with the City’s responses to public questions and proposals. The law requires a minimum of two public meetings at two different stages of the process. The City will conduct two Public Hearings and additional Public Meetings at the following stages of the process: Identifying Needs, Proposed Annual Action Plan (Project Selection), and the Final Annual Action Plan adoption. Public Hearings are also conducted for amendments to the Annual Action Plan as needed.

Access to Public Hearings

Public Hearings will be held only after there has been adequate notice as described in the “Public Notice” part of this Citizen Participation Plan, including a display advertisement in the non-legal section of the newspaper at least two weeks prior to the Public Hearing. Public Hearings are conducted during the regularly scheduled City Council meetings.

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

Accessibility Options for Public Hearings

All Public Hearings will be held at locations accessible to people with disabilities and provisions will be made for people with disabilities when requests are made within at least five working days prior to a hearing. Translators will be provided for people who do not speak English when requests are made at least five working days prior to a hearing.

Conduct of Public Hearings

To ensure that Public Hearings are meaningful to residents, each Public Hearing will be conducted in the presence of the City Council. Each resident choosing to speak will be allowed a maximum of three minutes to make a verbal presentation.

The following is a general timeline of when public hearings are conducted during the process:

December	Public Hearing to Identify Community Needs
April	Public Meeting to Discuss Proposed Annual Action Plan
May	Public Hearing to Adopt Final Annual Action Plan
As Needed	Public Hearing to Amend Consolidated/Action Plan

STAGES IN THE PROCESS

A. IDENTIFYING NEEDS

The Consolidated Plan exists to prioritize housing and community development needs of low- and moderate-income people. With diverse needs, this process deems the importance of necessity and resources.

A Public Hearing is required to obtain resident’s opinions about needs and the priority of those needs. In order to encourage public involvement, a Public Hearing is conducted to allow residents to express comments regarding the needs of the City’s low- and moderate-income populations.

B. THE PROPOSED ANNUAL ACTION PLAN (AND/OR FIVE-YEAR CONPLAN)

The law providing the funds covered by the Citizen Participation Plan calls for improved accountability of jurisdictions to the public. In compliance with the terms of the law, the City will use the following procedures:

At the beginning of this stage, the City will provide the public with an estimate of the amount of CDBG, HOME, and ESG funds it expects to receive in the upcoming year, along with a description of the range of types of activities that can be funded with these resources. Also, the public will be given an estimate of the amount of these funds that will be used in ways

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

that will benefit low and moderate-income individuals.

Displacement and Relocation

The City does not have any plans to displace or relocate any residents from their homes using CDBG, HOME, or ESG funds. If a project necessitated displacement or relocation, it would be done in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URA), which requires preparation of an “anti-displacement plan.” The anti-displacement plan would describe how the City would compensate people who are displaced as a result of the use of the funds, specifying the type and amount of compensation.

Technical Assistance

City Staff will work with organizations and individual’s representative of low- and moderate-income people who are interested in submitting a proposal to obtain funding for an activity. All potential applicants for funding are encouraged to contact City staff for technical assistance before completing a proposal form.

Availability of a Proposed Annual Action Plan

Within 3 weeks after the Public Hearing about the Proposed Annual Action Plan, the City will make the Proposed Annual Action Plan available to the public. In addition, copies will be available at the locations specified above in the section, “Public Access to Information.” The term “notice” described earlier in the section on “Public Notice” will be used.

Also, the date the Proposed Annual Action Plan is available to the public will be at least 30 days prior to the date a Final Annual Action Plan is approved by the City Council so that low- and moderate-income people will have a reasonable opportunity to examine it and to submit comments.

Public Hearing and Further Action

The City will conduct a series of three (3) public hearings during the development of the Annual Action plan.

Public Hearing Number One (No. 1) to discuss and adopt Objectives and Policies and Collect Community Needs Comments from the public to inform the development of the Annual Action Plan.

Public Hearing Number Two (No. 2) will be conducted to allow the public an opportunity to comment on the proposed project selections to be included in the Annual Action Plan.

Public Hearing Number Three (No. 3) will be conducted by City Council at the conclusion of the 30-day public review/comment period to consider the adoption of the Annual Action Plan.

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

The proposed Annual Action Plan will be made available for public review and comment(s) 30 days prior to the Public Hearing. After the public review and comment period

In preparing a Final Annual Action Plan, careful consideration will be given to all comments and views expressed by the public, whether given as verbal testimony at the Public Hearing or submitted in writing during the review and comment period. The Final Annual Action Plan will have a section that presents all comments and explains why any comments were not accepted.

C. THE FINAL ANNUAL ACTION PLAN (AND/OR FIVE-YEAR CONPLAN)

Copies of the Final Annual Action Plan will be made available to the public at City Hall for review. Copies can be obtained free of charge and within five (5) business days of the request.

D. AMENDMENTS TO THE ANNUAL ACTION PLAN (AND/OR FIVE-YEAR CONPLAN)

The Final Annual Action Plan will be amended any time there is:

- A change in one of the Priorities presented on the HUD-required Priority Table
- A change in the use of money to an activity not mentioned in the Final Annual Action Plan
- A change in the purpose, location, or scope of beneficiaries of an activity.

The public will be notified whenever there is an amendment.

Substantial Amendments

The following will be considered “substantial” amendments:

1. The elimination of an activity originally described in the Annual Action Plan.
2. The addition of an activity not originally described in the Annual Action Plan.
3. A change in the purpose of an activity, such as a change in the type of activity or its ultimate objective – for example, a change in a construction project from housing to commercial.
4. A meaningful change in the location of an activity affecting beneficiary access to services (i.e., services no longer provided within LMA census tract).
5. A change in the type or characteristics of people benefiting from the activity. Among the “characteristics” are:
 - a. The HUD-recognized income levels of 0-30 percent of Area Median Income (AMI); between 31 and 50 percent AMI; and between 51 to 80 percent AMI
 - b. Renter or homeowner
 - c. Single households, small households (two to four persons), large households (five or more persons)
6. A 20% decrease in the number of low and moderate-income people benefiting from an activity.

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

7. A change in the scope of an activity, such that there is a 20% increase or decrease in the amount of money allocated to the activity.

Public Notice and Public Hearing for Substantial Amendments

There must be reasonable notice of a proposed Substantial Amendment so that residents will have an opportunity to review it and comment on it. Notice will be made according to the procedures described earlier in this Citizen Participation Plan, with the addition of the following procedures specifically for Substantial Amendments:

1. There will be advanced notice of the availability of a proposed Substantial Amendment 30 days before there is a Public Hearing.
2. A detailed written description of the proposed Substantial Amendment will be made available to the public. Also, copies will be available at the locations indicated earlier in this Citizen Participation Plan under “Public Access to Information.”
3. There will be a Public Hearing regarding the proposed Substantial Amendment conducted by the City Council. This Public Hearing will not take place until the public has had 30 days to review the proposed Substantial Amendment.
4. In preparing the Final Substantial Amendment, careful consideration will be given to all comments and views expressed by the public, whether given as verbal testimony at the Public Hearing or submitted in writing during the review and comment period. The Final Substantial Amendment will have a section that presents all comments and explains why any comments were not accepted.

Public Notice and Public Hearing for Substantial Amendment-CARES Act

The City has notified the Los Angeles HUD office of its election of eligible CARES Act waivers to Citizen Participation public noticing and comment period to accelerate the implementation of selected eligible activities for the CDBG-CV and ESG-CV funds and to quickly respond to the growing spread and effects of COVID-19.

Notice of Public Hearing and public comment period for any FY 2019/20 Substantial Amendment for the CARES Act funds (CARES Act Amendment) will be at least five days in advance as allowed by HUD waivers. The notices will give residents a clear understanding of the event being announced.

There must be reasonable notice of a proposed CARES Act Amendment so that residents will have an opportunity to review it and comment on it. Notice will be made according to the procedures described earlier in this Citizen Participation Plan for CARES Act, with the addition of the following procedures specifically for CARES Act Amendment:

1. There will be advanced notice of the availability of a proposed Substantial Amendment at least 5 days before there is a Public Hearing.
2. A detailed written description of the proposed CARES Act Amendment will be made available to the public. Also, copies will be available at the locations indicated earlier

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

in this Citizen Participation Plan under “Public Access to Information.”

3. There will be a Public Hearing regarding the proposed CARES Act Amendment conducted by the City Council. This Public Hearing will not take place until the public has had at least 5 days to review the proposed CARES Act Amendment.
4. If social distancing orders relating to the COVID-19 outbreak are still being enforced, the City will provide video/audio access to the public through video conferencing medium such as Zoom.
5. In preparing the Final Substantial Amendment, careful consideration will be given to all comments and views expressed by the public, whether given as verbal testimony at the Public Hearing or submitted in writing during the review and comment period. The final CARES Act Amendment will have a section that presents all comments and explains why any comments were not accepted.

E. CONSOLIDATED ANNUAL PERFORMANCE AND EVALUATION REPORT (CAPER)

Every program year the City must submit to the Department of Housing and Urban Development (HUD) a Consolidated Annual Performance and Evaluation Report (CAPER) within 90 days of the close of the program year. In general, the CAPER must describe how funds were used during the program year and the extent to which these funds were used for activities that benefited low and moderate-income people.

Public Notice for the Consolidated Annual Performance and Evaluation Report (CAPER)

There must be reasonable notice that the Consolidated Annual Performance and Evaluation Report (CAPER) is available so that residents will have an opportunity to review it and comment on it. Notice will be made according to the procedures described earlier in this Citizen Participation Plan, with the addition of the following procedures specifically for the CAPER:

1. The City will publish a notice of CAPER availability in advance of the public review period.
2. A complete copy of the CAPER will be made available to the public at the locations indicated earlier in the Citizen Participation Plan under “Public Access to Information.”
3. The public will have a minimum of 15 days to review and provide comments on the CAPER.
4. In preparing the CAPER for submission to HUD, careful consideration will be given to all comments expressed by the public. The CAPER sent to HUD will have a section that presents all comments and explains why any comments were not accepted.

Contents of the CAPER

The CAPER provides details on the actions taken by the City and the accomplishments for the previous program year. Accomplishments include the number of low and moderate-income persons served and the ethnicity of those individuals. Also provided are

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

expenditures taken during the year and funds spent undertaking each activity.

COMPLAINT PROCEDURES

Comments, suggestions, or complaints may be addressed to the City Manager's Office as follows:

City of Moreno Valley
City Manager's Office
Attn: Grants Division
14177 Frederick Street
P.O. Box 88005
Moreno Valley, CA 92552-0805
(951) 413-3450

All written complaints from the public will receive a meaningful written response within 15 working days after receipt.

CHANGES TO THE CITIZEN PARTICIPATION PLAN

The Citizen Participation Plan can be changed only after the public has been notified of the intent to modify it, and only after the public has had a reasonable chance to review and comment on proposed substantial changes to it.

Community Development Block Grant (CDBG), Home Investment Partnerships Program (HOME),
Emergency Solutions Grants Program (ESG) – FY 2024/25 Citizen Participation Plan

FY 2024/25 Annual Action Plan & Citizen Participation Schedule

Date	Event
Tuesday, November 28, 2023	Public Meeting 1: Public Meeting to Review Action Plan Calendar Schedule and Objectives/Policies
Tuesday, December 5, 2023	Public Hearing 1: Public Hearing to Adopt Objectives/Policies & Collect Community Needs Comments
Friday, December 15, 2023	Notice of Funding Availability (NOFA) Available. APPLICATIONS AVAILABLE FOR DISTRIBUTION.
Thursday, January 4, 2024	Application Workshop
Wednesday, January 31, 2024	Applications Due from Applicants
Tuesday, March 26, 2024	Public Meeting 2: Open Technical Review Committee during Finance Subcommittee Meeting
Friday, March 22, 2024	Commencement of 30 - Day Action Plan Public Comment/Review Period
Tuesday, April 16, 2024	Public Hearing 2 for Action Plan: Public Hearing to Review Project Recommendations as issued by the Finance Subcommittee
Tuesday, May 7, 2024	Close of 30 – Day Action Plan Public Comment/Review Period
Tuesday, May 7, 2024	Public Hearing 3 for Action Plan: Approve Annual Action Plan
Tuesday, May 14, 2024	Submittal of 2023/24 Action Plan to HUD



Report to City Council

TO: Mayor and City Council

FROM: Jane Halstead, CMC, City Clerk

AGENDA DATE: December 5, 2023

TITLE: CITY COUNCIL REORGANIZATION - SELECTION OF MAYOR PRO TEM

RECOMMENDED ACTION

Recommendation:

1. Conduct the reorganization of the City Council by selecting one Council Member to serve a one-year term as Mayor Pro Tem.

SUMMARY

The City Council shall meet annually in December to choose one of its members as Mayor Pro Tem. The new Mayor Pro Tem shall be installed, sworn, and shall assume the office at the Council meeting.

DISCUSSION

Section 4.1.3 of the Rules of Procedure provides that nominations for the office Mayor Pro Tem may be made by any member of the City Council and need not be seconded in order to be effective. Appointment shall be made by three or more affirmative votes on a motion to appoint. In the event that no person receives three or more votes in the selection process, the selection process shall be repeated immediately; provided, however, that the two persons receiving the highest number of votes in the preceding selection process shall be the only nominees. If, upon repeating the selection process of Mayor Pro Tem, no person has yet received three affirmative votes for such office, the City Council may either repeat the selection process until the officer has been duly selected or may continue the selection to the next regular meeting of the City Council.

The new Mayor Pro Tem, shall serve until the next meeting scheduled for selection of the Mayor Pro Tem in December 2024.

ALTERNATIVES

1. Conduct the reorganization of the City Council by selecting a Mayor Pro Tem.
2. Continue the selection to the next regular meeting of the City Council if upon repeating the selection process, no person receives three affirmative votes for Mayor Pro Tem.

FISCAL IMPACT

There is no fiscal impact associated with the recommended action.

NOTIFICATION

Publication of the agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Jane Halstead
Manager of the Office of Mayor and City Council/City Clerk

CITY COUNCIL GOALS

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

CITY COUNCIL STRATEGIC PRIORITIES

1. Economic Development
2. Public Safety
3. Library
4. Infrastructure
5. Beautification, Community Engagement, and Quality of Life
6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

None

APPROVALS

Budget Officer Approval	<u> ✓ Approved </u>	11/27/23 4:13 PM
City Attorney Approval	<u> ✓ Approved </u>	

City Manager Approval

✓ Approved

11/27/23 4:23 PM



Report to City Council

TO: Mayor and City Council
 Mayor and City Council Acting in its Capacity as
 President and Members of the Board of Directors of the
 Moreno Valley Community Services District (CSD)

FROM: Jeremy Bubnick, Parks & Community Services Director

AGENDA DATE: December 5, 2023

TITLE: REVIEW AND CONSIDER APPROVAL OF PUBLIC ART
 REQUEST FOR FUNDING APPLICATION –ANTONIO
 MARTINEZ MAIN LIBRARY MURAL

RECOMMENDED ACTION

Recommendations: That the City Council:

1. Receive and file the artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Antonio Martinez for the creation and installation of a 260 square foot mural at the Main Library; and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

SUMMARY

This report recommends that the Council review and consider approval of the Public Art Program Request for Funding Application submitted by Antonio Martinez for the creation and installation of a 260 square foot mural to be located outside of the Moreno Valley Main Library Branch. The amount of funding being requested by the applicant is \$5,935.00.

If approved, Parks & Community Services staff will work with the selected applicant to enter into a Professional Services Agreement to complete the proposed project.

The Public Art Program will utilize funding from Development Impact Fees (DIF)-Public Art Fund 2916.

DISCUSSION

On June 20, 2023 the City Council approved the City of Moreno Valley’s Public Art Policy which includes guidelines regarding submittal process, selection criteria, installation, deinstallation, and agreements as it relates to the Public Art Program. It further considers the role of the Arts Commission and calls for City Council to make the final decision on all public art on City of Moreno Valley property.

Per the approved Public Art Policy, “Public Art” is defined as artistic works created by artists as unique and original works located in a public space or facility and accessible to the public. Public Art includes works of a permanent or temporary nature. “Public Art” can be in the form of exhibit, performance, installation, integration of art and architecture, and a unique physical environment or feature that integrates art in the city. Eligible mediums include but are not limited to painting, mural, drawing, sculpture, photography, landscaping, water feature, components of a building, works of sound and/or light, and spoken word. Mass produced or standardized art, mechanical reproductions, or directional signage are not eligible mediums.

During a Special Meeting held on November 15, 2023, the Arts Commission approved the subject application to be forwarded to the City Council for review and final funding consideration.

ALTERNATIVES

1. Provide approval of Public Art Program Request for Funding Application for Antonio Martinez in the amount of \$5,935.00; or
2. Do not approve the Public Art Program Request for Funding Application; or
3. Provide Staff with alternate direction.

FISCAL IMPACT

Funding for the Public Art Program is available through DIF Public Art Fund 2916. If approved, a budget adjustment would be requested as outlined below:

Description	Fund	GL Account No.	Type (Rev/Exp)	FY 23/24 Budget	Proposed Adjustments	FY Amended Budget 23/24
Transfer to (Other Funds)	2916 DIF Public Art	2916-99-95-92916-900001	Rev	\$0	\$5,935	\$5,935
Transfer in -from	XXXX-	xxxx-xx-xx-xxxxx-80xxxx	Rev	\$0	\$5,935	\$5,935

DIF Public Art	*New Fund					
Contractual Svcs-Other	XXXX- *New Fund	xxxx-xx-xx-xxxxx-625099	Exp	\$0	\$5,935	\$5,935

NOTIFICATION

Posting of Agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Patty Yhuit
PCS Admin & Fin Services Division Manager

Department Head Approval:
Jeremy Bubnick
Parks & Community Services Director

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

1. Economic Development
2. Public Safety
3. Library
4. Infrastructure
5. Beautification, Community Engagement, and Quality of Life
6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

1. Application_Antonio Martinez
2. Artwork_Antonio Martinez
3. Budget_ Antonio Martinez

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/28/23 5:07 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/28/23 5:23 PM



Monday, October 23, 2023

Public Art Application

The City Council continues to support community identity by encouraging development and display of public art to promote the history, heritage, culture, and contemporary identity of Moreno Valley. The goal of the Moreno Valley Public Art program is to offer an opportunity for local artists and business owners to create a distinctive sense of place and pride in Moreno Valley city facilities, parks, utility boxes, streets, and open spaces.

Requirement Checklist (do not move forward with the application until all applicable items are available to upload)

Artist Information

Full Name	Antonio Martinez
Are you a resident of the City of Moreno Valley	<input type="checkbox"/> Yes
E-mail	okiraone@gmail.com
Phone Number	(951) 990-4963
Address	25350 Santiago Dr #53 Moreno Valley , California , 92551 United States

Briefly describe your experience as an artist or involvement in public art projects:

Antonio L. Martinez is creative artist based in Moreno Valley. He carries over 20 years of professional experience in planning and executing successful mural and multimedia projects. His artistic vision speaks of positive expression, liberation, culture, community and the conflicts and contrasts between our ancestral consciousness and the human experience.

Antonio's work can be found throughout the Inland Empire providing inspiration and strength to communities, resource centers, youth centers, elementary schools, as well as universities and community colleges.

He has most recently participated in the Cheech Marin Center for Chicano Art & Culture's grand opening and Artwalk showcase in Riverside. He was commissioned to paint a portrait mural of The Edgemont Community Center's founder Irene Kendall and was invited to contribute to the Sunnymead Blvd. mural project coordinated by Artist Rosy Cortez.

Notable clients include Mundo Chicano/Latino Theme Hall (UC Riverside), Pan African Theme Hall (UC Riverside), RCC, City of Riverside, Alcott Elementary (Riverside), Lytle Creek Elementary (San Bernardino), and Alice Birney Elementary (Colton). He's lived in Moreno Valley for the last 14 years thriving in inspiration while cultivating his family. You can find him on Instagram @okiramartinez to see his past and current works or projects.

Social Pages

Attachment: Application_Antonio Martinez (6460 : REVIEW & CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION --ANTONIO

Instagram: @okiramartinez

Project Details

Will you be requesting monetary funds? Yes

If you responded yes to the above, what is the amount requested? 5935.00

Project type (check all that apply) Mural

Provide a brief itemized list of your budget allocation:

Expenses

ArtistsRate: \$19 per sq.ft.
DIMENSION 13FT. X 20FT.

AREA/SQ.FT. 260FT.
PRICE \$4,940

Acrylic paint and primer: \$400
Scaffolding: \$495
Drop cloths/brushes/tips: \$50
Transportation: \$50

TOTAL: \$5,935

Project description:

"Abundance Through Knowledge" is proposed as a permanent mural to be painted on the Main Branch of the Moreno Valley Public Library. The created piece would sit at the south facing wall before the entryway. The mural would center around the vibrant image of a young woman in colorful dress immersed in the book she is reading, beautiful and proud her profile set against a contrasting landscape of desert, sky and on into night. The confidence she portrays is meant to inspire and speak to the bold positivity, diversity, imagination and understanding available to us through the pursuit of knowledge.

Proposed project location (include district and address):

Location: Moreno Valley Public Library. 25480 Alessandro Blvd. Moreno Valley 92553. Exact location would be the south facing wall of the Main Branch library just before the entry way. This piece would be outside in a publicly accessible space and visible from both directions of Alessandro Blvd.

Photo of proposed project location:



Describe the goal/objective of your project:

Once completed the mural would provide the city of Moreno Valley with a diverse work of art jeweled from a new perspective. A visual representation of the knowledge contained within. Available to the community and meant to attract the eyes and minds of residents while also contributing to the larger movement of public art projects growing throughout the Inland Empire.

Will project include community outreach or engagement?
(ex. community or volunteer day, work shop, etc.)

No

Has the City of Moreno Valley provided funding to you in the past?

No

Approximately how many people will participate or have the opportunity to view your project: 0

Please Upload the Following Items Below:

File Upload

Moreno Valley Public Librarypdf

Terms and Conditions

Accepted

Attachment: Application_Antonio Martinez (6460 : REVIEW & CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION --ANTONIO

Waiver of Liability

The undersigned, by participating in the City of Moreno Valley Public Art Program ("Art Program"), hereby agrees to waive all rights to pursue any actions, claims or lawsuits against the City of Moreno Valley ("City") and all of its affiliated agencies, and their respective officials, agents, employees or volunteers (collectively, "City Parties"), irrespective of the nature of the injury, damage or liability, and release and hold harmless the City Parties from all claims, actions or lawsuits arising from or in connection with any injuries, death, liability, expenses, losses, claims, suits, actions, judgments, costs, or damages arising from or related to my participation in the Art Program.

I also hereby expressly waive any and all rights and benefits conferred upon me by the provisions of Section 1542 of the California Civil Code which reads as follows:

"A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."

Notwithstanding the provisions of Section 1542, and to implement a full and complete release as set forth, I acknowledge this waiver will be effective as a bar to any and all actions, fees, damages, losses, claims, liabilities and demands of whatsoever character, nature and kind known or unknown, or suspected or unsuspected. I further represent and warrant that I have read this Form, including this waiver provision, and, prior to executing this instrument, I have had an opportunity to consult an attorney about this instrument and specifically about this waiver provision.

Initials

By signing below, I acknowledge that I am authorized to sign this application. I have read and agree to abide by the City of Moreno Valley Public Art Program requirements and Waiver of Liability. I understand I will need to complete the following items if my project is approved: artist agreement, new vendor form, W-9, Moreno Valley business license, and provide a certificate of insurance. I understand that this application is subject to City and Art Commission review, approval, and denial.

Date Signed

Monday, October 23, 2023

Want to Submit in Person?

Please print this application and turn in supporting documents at the Conference & Recreation Center at 14075 Frederick St. Moreno Valley, CA 92553.

Attachment: Application_Antonio Martinez (6460 : REVIEW & CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION --ANTONIO



Questions or comments?

Contact the Public Art team at Publicart@moval.org, visit Moval.org/parks, or call Claudia Torres at 951-413-3289

Attachment: Application_Antonio Martinez (6460 : REVIEW & CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –ANTONIO



Attachment: Artwork_Antonio Martinez (6460 : REVIEW & CONSIDER APPROVAL OF PUBLIC ART

TIMELINE TO COMPLETE

Estimated 6 to 7 weeks.

BUDGET

Amount Requested: \$5,935

Expenses

Artists Rate: \$19 per sq.ft.

DIMENSION	AREA/SQ.FT.	PRICE
13FT. X 20FT.	260FT.	\$4,940

Acrylic paint and primer: \$400

Scaffolding: \$495

Drop cloths/brushes/tips: \$50

Transportation: \$50

TOTAL: \$5,935



Report to City Council

TO: Mayor and City Council
 Mayor and City Council Acting in its Capacity as
 President and Members of the Board of Directors of the
 Moreno Valley Community Services District (CSD)

FROM: Jeremy Bubnick, Parks & Community Services Director

AGENDA DATE: December 5, 2023

TITLE: REVIEW AND CONSIDER APPROVAL OF PUBLIC ART
 REQUEST FOR FUNDING APPLICATION –ALEXANDRA
 GARCIA GATEWAY PARK RESTROOM MURAL

RECOMMENDED ACTION

Recommendations: That the City Council:

1. Receive and file artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Alexandra Garcia for the creation and installation of a 732 square foot mural at the Gateway Park Restroom; and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

SUMMARY

This report recommends that the Council review and consider approval of the Public Art Program Request for Funding Application submitted by Alexandra Garcia for the creation and installation of a 732 square foot mural to be located outside of the Gateway Park Restroom. The amount of funding being requested by the applicant is \$18,900.

If approved, Parks & Community Services staff will work with the selected applicant to enter into a Professional Services Agreement to complete the proposed project.

The Public Art Program will utilize funding from Development Impact Fees (DIF)-Public

Art Fund 2916.

DISCUSSION

On June 20, 2023, the City Council approved the City of Moreno Valley’s Public Art Policy which includes guidelines regarding submittal process, selection criteria, installation, deinstallation, and agreements as it relates to the Public Art Program. It further considers the role of the Arts Commission and calls for City Council to make the final decision on all public art on City of Moreno Valley property.

Per the approved Public Art Policy, “Public Art” is defined as artistic works created by artists as unique and original works located in a public space or facility and accessible to the public. Public Art includes works of a permanent or temporary nature. “Public Art” can be in the form of exhibit, performance, installation, integration of art and architecture, and a unique physical environment or feature that integrates art in the city. Eligible mediums include but are not limited to painting, mural, drawing, sculpture, photography, landscaping, water feature, components of a building, works of sound and/or light, and spoken word. Mass produced or standardized art, mechanical reproductions, or directional signage are not eligible mediums.

During a Special Meeting held on November 15, 2023, the Arts Commission approved the subject application to be forwarded to the City Council for review and final funding consideration.

ALTERNATIVES

1. Provide approval of Public Art Program Request for Funding Application for Alexandra Garcia in the amount of \$18,900; or
2. Do not approve the Public Art Program Request for Funding Application; or
3. Provide Staff with alternate direction.

FISCAL IMPACT

Funding for the Public Art Program is available through DIF Public Art Fund 2916. If approved, a budget adjustment would be requested as outlined below:

Description	Fund	GL Account No.	Type (Rev/Exp)	FY 23/24 Budget	Proposed Adjustments	FY 23/24 Amended Budget
Transfer to (Other Funds)	2916 DIF Public Art	2916-99-95-92916-900001	Rev	\$0	\$18,900	\$18,900
Transfer in -from DIF Public Art	XXXX-*New Fund	xxxx-xx-xx-xxxxx-80xxxx	Rev	\$0	\$18,900	\$18,900
Contractual Svcs-Other	XXXX-*New Fund	xxxx-xx-xx-xxxxx-625099	Exp	\$0	\$18,900	\$18,900

NOTIFICATION

Posting of Agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Patty Yhuit
PCS Admin & Fin Services Division Manager

Department Head Approval:
Jeremy Bubnick
Parks & Community Services Director

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

1. Economic Development
2. Public Safety
3. Library
4. Infrastructure
5. Beautification, Community Engagement, and Quality of Life
6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

1. Application_A.Garcia
2. Art Work_A.Garcia
3. Budget_A.Garcia

APPROVALS

Budget Officer Approval ✓ Approved 11/28/23 5:09 PM

City Attorney Approval
City Manager Approval

✓ Approved
✓ Approved

11/28/23 5:20 PM

Tuesday, October 31, 2023



Public Art Application

The City Council continues to support community identity by encouraging development and display of public art to promote the history, heritage, culture, and contemporary identity of Moreno Valley. The goal of the Moreno Valley Public Art program is to offer an opportunity for local artists and business owners to create a distinctive sense of place and pride in Moreno Valley city facilities, parks, utility boxes, streets, and open spaces.

Requirement Checklist (do not move forward with the application until all applicable items are available to upload)

Proposed project concepts / mock-up of design

Project Schedule – planning, prep, design, execution

Examples of previous artwork

Itemized Budget Allocation (if additional document is needed)

Resume/CV

References

Artist Information

Full Name Alexandra Garcia

Are you a resident of the City of Moreno Valley Yes

E-mail nyx.artist@gmail.com

Phone Number (619) 289-5588

Address 22698 Springmist dr.
Moreno Valley, CA, 92557
United States

Briefly describe your experience as an artist or involvement in public art projects:

My experience with public art began in 2019 when my partner and I were commissioned to do an interior mural for a restaurant called "Fire Wings" which was across the street from the college we studied studio art at (Cal state University of San Bernardino). Fire Wings continued to hire us for their various upcoming locations for years to follow. Each mural wraps around the entire higher half of the interior walls of the restaurant and was completed using a scissor lift. Although each design was derived from the same concept, the composition and color palette varied and would adapt to the unique environment of every location we worked on. Since then we completed more than twenty large scale murals for Fire Wings in cities spanning from San Bernardino to San Francisco. This year I've had the joy of completing more than five public art works throughout the Inland Empire. All projects were unique from the other, in that they were all painted on completely different surfaces and on a variety of different sizes. My designs always aim to play off the colors, plants and fauna found in the project location while adding an appreciation for

Attachment: Application_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-ALEXANDRA

the park’s amenities and creating an artwork the community will feel proud of. I have been a working artist making a living doing what I love for almost six years now and am grateful for every single project I am trusted with. It is my passion to beautify and bring color to the community that uses the park for their family gatherings and outings. I have seen first hand, time and time again the joy it brings the community when the city commissions art at their local parks. Many times as I’m working on these projects, long-time residents stop by to thank me and have a chat about their memories of the park and express how grateful they are to see colorful artwork on a previously damaged, dull colored building. It is my favorite aspect of doing public art, to engage with the community and I always look forward to working on more projects.

Social Pages

Instagram: @nyxsart

Project Details

Will you be requesting monetary funds? Yes

If you responded yes to the above, what is the amount requested? 19400

Project type (check all that apply) Mural

Provide a brief itemized list of your budget allocation:

Budget Allocation Expenditure List

Restroom Building Beautification project for Gateway Park

Artist Fee

\$25 per square foot. Building measures to 732 sq ft.

= \$18,300

Transportation

This covers the cost of gas for transportation to project location and back home, as well as trips to get project materials.

= \$200

Administrative Overhead

This covers the cost of insurance and other documents mandatory to work on this project. This also covers the cost to compensate for any overhead watch deemed necessary for security purposes.

= \$300

Supplies & Materials

This covers the cost of all materials and supplies purchased for this project as well as food purchased during the hours of production of project. (1 qt of paint= \$22.98, 1 case of water based spray paints=\$34.39) will be purchasing 1 qt and 1 case for every background color

= \$600

Requested amount Grand Total: \$19,400

Project description:

I would love the opportunity to beautify the restroom building at Gateway Park with a thoughtfully designed mural. The title of my design is “Wish Upon A Star” and features two young donkey portraits in a colorful space-like landscape with shooting stars in the distance. The vivid landscape wraps around the entire building providing full coverage and complimenting the fun playground features of the park. The

lively colors of the mural are a gradient that goes from a bright red to a deep blue which are the colors of the playground. An enhancement of the restroom building would make the community proud and more likely to visit the park more often.

Proposed project location (include district and address):

23975 Manzanita Ave, Moreno Valley, CA 92557 DISTRICT 2

Photo of proposed project location:



Attachment: Application_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-ALEXANDRA



Attachment: Application_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-ALEXANDRA



Describe the goal/objective of your project:

My aim is to highlight the stunning park features of Gateway Park and create a mural the community can feel a connection with. The colors and theme of the park’s playground amenities have a fun space theme that my mural’s design plays off of. During the weekends, this park is full of family fun and I believe the community will be grateful to the city for the beautification of this restroom building. Shooting stars can be found dashing across the mural and a portrait of an adolescent donkey pays homage to the mascot of this area of Moreno Valley. The title of this mural is “Wish upon a Star” because the donkey character is looking at the stars and making a wish.

Will project include community outreach or engagement?
(ex. community or volunteer day, work shop, etc.)

Has the City of Moreno Valley provided funding to you in the past?

Approximately how many people will participate or have the opportunity to view your project: 20

Additional Information Regarding Your Project:







I just want to thank the city for creating this amazing opportunity that I have always dreamed of doing since growing up here in my adolescent years. I always knew I wanted to be an artist and back then only thought an opportunity like this was in my head, so this truly means so much to me. My family and friends will be so happy and proud as well as the community that supported me growing up. I am grateful for the art academy when I attended Canyon Springs HS, as well as the AVID and ASB programs I was in which allowed me to express myself creatively and prepared me for my professional artistic journey. I also want to quickly note that the digital renderings do not fully do the mural's actual final appearance

Attachment: Application_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-ALEXANDRA

justice, as painterly details are not portrayed as well as quality of paint and technical abilities. Thank you again for this opportunity.

Please Upload the Following Items Below:

File Upload

-  Budget for Gateway Park.pdf
-  Gateway Park Project Plan.pdf
-  Gateway Park Rendering.pdf
-  Nyx ArtistResume&CV 10.23.pdf
-  Nyx past public works2023.pdf
-  REFERENCES.pdf

Terms and Conditions

Accepted

Waiver of Liability

The undersigned, by participating in the City of Moreno Valley Public Art Program ("Art Program"), hereby agrees to waive all rights to pursue any actions, claims or lawsuits against the City of Moreno Valley ("City") and all of its affiliated agencies, and their respective officials, agents, employees or volunteers (collectively, "City Parties"), irrespective of the nature of the injury, damage or liability, and release and hold harmless the City Parties from all claims, actions or lawsuits arising from or in connection with any injuries, death, liability, expenses, losses, claims, suits, actions, judgments, costs, or damages arising from or related to my participation in the Art Program.

I also hereby expressly waive any and all rights and benefits conferred upon me by the provisions of Section 1542 of the California Civil Code which reads as follows:

"A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."

Notwithstanding the provisions of Section 1542, and to implement a full and complete release as set forth, I acknowledge this waiver will be effective as a bar to any and all actions, fees, damages, losses, claims, liabilities and demands of whatsoever character, nature and kind known or unknown, or suspected or unsuspected. I further represent and warrant that I have read this Form, including this waiver provision, and, prior to executing this instrument, I have had an opportunity to consult an attorney about this instrument and specifically about this waiver provision.

Initials

Attachment: Application_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-ALEXANDRA

A.G

A.G.

By signing below, I acknowledge that I am authorized to sign this application. I have read and agree to abide by the City of Moreno Valley Public Art Program requirements and Waiver of Liability. I understand I will need to complete the following items if my project is approved: artist agreement, new vendor form, W-9, Moreno Valley business license, and provide a certificate of insurance. I understand that this application is subject to City and Art Commission review, approval, and denial.

Date Signed

Tuesday, October 31, 2023

Want to Submit in Person?


Please print this application and turn in supporting documents at the Conference & Recreation Center at 14075 Frederick St. Moreno Valley, CA 92553.

Questions or comments?

Contact the Public Art team at Publicart@moval.org, visit Moval.org/parks, or call Claudia Torres at 951-413-3289

TITLE	Public Art Application
DOCUMENT ID	233038701312040
DOCUMENT PAGES	7
STATUS	COMPLETED
TIME ZONE	America/Los Angeles

DOCUMENT HISTORY

 Signed	Oct 31, 2023 07:03 PM	Signed by () IP: 47.155.113.111
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Attachment: Application_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-



Attachment: Art Work_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-





Attachment: Art Work_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-



Attachment: Art Work_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-

Artist: Alexandra Garcia Contact: Nyx.artist@gmail.com Date: 11/22/23

Budget Allocation Expenditure List

Restroom Building Beautification project for Gateway Park

Line Item	Description	Amount	Requested Amount
Artist Fee	\$25 per square foot. Building measures to 732 sq ft.	\$18,300	\$18,300
Supplies & Materials	This covers the cost of all materials and supplies purchased for this project as well as food purchased during the hours of production of project. (1 qt of paint= \$22.98, 1 case of water based spray paints=\$34.39) will be purchasing 1 qt and 1 case for every background color	\$600	\$600
		Requested amount: \$18,900	Requested amount Grand Total: \$18,900

Attachment: Budget_A.Garcia (6461 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-



Report to City Council

TO:

FROM: Jeremy Bubnick, Parks & Community Services Director

AGENDA DATE: December 5, 2023

TITLE: REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –PATRICK BARWINSKI CRC MURAL

RECOMMENDED ACTION

Recommendations: That the City Council:

1. Receive and file the artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Patrick Barwinski for the creation and installation of a 2,835 square foot mural at the Moreno Valley Conference & Recreation Center (CRC); and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

SUMMARY

This report recommends that the Council review and consider approval of the Public Art Program Request for Funding Application submitted by Patrick Barwinski for the creation and installation of a 2,835 square foot mural to be located outside of the Moreno Valley Conference & Recreation Center. The amount of funding being requested by the applicant is \$69,500.

If approved, Parks & Community Services staff will work with the selected applicant to enter into a Professional Services Agreement to complete the proposed project.

The Public Art Program will utilize funding from Development Impact Fees (DIF)-Public Art Fund 2916.

DISCUSSION

On June 20, 2023 the City Council approved the City of Moreno Valley’s Public Art Policy which includes guidelines regarding submittal process, selection criteria, installation, deinstallation, and agreements as it relates to the Public Art Program. It further considers the role of the Arts Commission and calls for City Council to make the final decision on all public art on City of Moreno Valley property.

Per the approved Public Art Policy, “Public Art” is defined as artistic works created by artists as unique and original works located in a public space or facility and accessible to the public. Public Art includes works of a permanent or temporary nature. “Public Art” can be in the form of exhibit, performance, installation, integration of art and architecture, and a unique physical environment or feature that integrates art in the city. Eligible mediums include but are not limited to painting, mural, drawing, sculpture, photography, landscaping, water feature, components of a building, works of sound and/or light, and spoken word. Mass produced or standardized art, mechanical reproductions, or directional signage are not eligible mediums.

During a Special Meeting held on November 15, 2023, the Arts Commission approved the subject application to be forwarded to the City Council for review and final funding consideration.

ALTERNATIVES

- 1. Provide approval of Public Art Program Request for Funding Application for Patrick Barwinski in the amount of \$69,500; or
- 2. Do not approve the Public Art Program Request for Funding Application; or
- 3. Provide Staff with alternate direction.

FISCAL IMPACT

Funding for the Public Art Program is available through DIF Public Art Fund 2916. If approved, a budget adjustment would be requested as outlined below:

Description	Fund	GL Account No.	Type (Rev/Exp)	FY 23/24 Budget	Proposed Adjustments	FY 23/24 Amended Budget
Transfer to (Other Funds)	2916 DIF Public Art	2916-99-95-92916-900001	Rev	\$0	\$69,500	\$69,500
Transfer in -from DIF Public Art	XXXX- *New Fund	xxxx-xx-xx-xxxxx-80xxxx	Rev	\$0	\$69,500	\$69,500
Contractual Svcs- Other	XXXX- *New Fund	xxxx-xx-xx-xxxxx-625099	Exp	\$0	\$69,500	\$69,500

NOTIFICATION

Posting of Agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Patty Yhuit
PCS Admin & Fin Services Division Manager

Department Head Approval:
Jeremy Bubnick
Parks & Community Services Director

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

- 1. Economic Development
- 2. Public Safety
- 3. Library
- 4. Infrastructure
- 5. Beautification, Community Engagement, and Quality of Life
- 6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

- 1. Application_P.Barwinski
- 2. Art Work_P.Barwinski
- 3. Budget_P.Barwinski

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/28/23 5:10 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/28/23 5:23 PM

Thursday, November 9, 2023



Public Art Application

The City Council continues to support community identity by encouraging development and display of public art to promote the history, heritage, culture, and contemporary identity of Moreno Valley. The goal of the Moreno Valley Public Art program is to offer an opportunity for local artists and business owners to create a distinctive sense of place and pride in Moreno Valley city facilities, parks, utility boxes, streets, and open spaces.

Requirement Checklist (do not move forward with the application until all applicable items are available to upload)

Proposed project concepts / mock-up of design

Project Schedule – planning, prep, design, execution

Examples of previous artwork

Itemized Budget Allocation (if additional document is needed)

Resume/CV

References

Additional Supporting Materials – For example, portfolio, video files, articles, etc.

Artist Information

Full Name Patrick Barwinski

Are you a resident of the City of Moreno Valley Yes

Company Name Barwinski Design

Business Tax ID Number 84-2315662

Contact Name (if different than applicant) Patrick Barwinski

E-mail prbarwinski@gmail.com

Phone Number (951) 796-2772

Address 9911 Cambria Circle
Moreno Valley, CA, 92557
United States

Attachment: Application_P.Barwinski (6462 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-PATRICK

Briefly describe your experience as an artist or involvement in public art projects:

With a deep appreciation for public art and its ability to transform spaces, I have dedicated my career to creating captivating and meaningful art that engage and inspire viewers. Having completed numerous successful projects in diverse settings, I am confident in my ability to bring a fresh and distinctive artistic perspective to Moreno Valley.

I firmly believe that art has the power to connect communities and evoke emotions. Through my public art, I strive to tell stories, capture the essence of a place, and celebrate the unique cultural fabric of a community. I am particularly drawn to the opportunity to contribute to the artistic landscape of Moreno Valley, as a local born, raised and currently living in this beautiful progressive city.

My artistic style can best be described as dynamic, vibrant, and visually captivating. I have honed my skills in creating large-scale murals that incorporate intricate details, bold colors, and diverse artistic elements such as my "How To Fly" mural. A massive 2,500 sq ft mural located in the heart of downtown Riverside, CA at the Mariposa Alley.

Collaboration is an integral part of my artistic process. I thrive on engaging with clients, community members, and fellow artists to gather insights and perspectives that inform the mural's concept and design. I am committed to actively involving the community throughout the mural creation process, ensuring that the artwork resonates deeply with the people it represents.

I possess strong project management skills, allowing me to handle all aspects of a mural project, from conceptualization to completion. I am adept at working within deadlines, managing resources efficiently, and adapting my artistic vision to meet the specific requirements of each project. I also have experience coordinating with local authorities and obtaining the necessary permits to ensure a smooth and successful execution.

Social Pages

Website: www.mrbarwinski.com
Instagram: @mrbarwinski

Project Details

Will you be requesting monetary funds? Yes

If you responded yes to the above, what is the amount requested? 70000

Project type (check all that apply)
 Mural
 Community Outreach Engagement & Watch Party

Provide a brief itemized list of your budget allocation:

Itemized Budget List:

\$10,000
 Materials / Supplies: Paint, Primer, Anti Graffiti, Brushes, Tape, Projectors, Paint Sprayer etc

\$8,000
 Rentals: Scissor Lift / Boom Lift / Scaffolds

Attachment: Application_P.Barwinski (6462 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-PATRICK

\$500
License & Insurance: General Liability Insurance

\$36,000
Artist Fee: Prep, Design, Labor etc

\$15,500
Additional: Assistant, Pressure Washing, Videography, Photos, Community Outreach etc

Project description:

Location:

Exterior mural located at the Moreno Valley Conference & Recreation Center (14075 Frederick St, Moreno Valley, CA 92553)

The mural will be found on the right cement wall as you enter the building and exit through the sliding doors towards the outdoor stage and garden.

The mural is approx. 2,835 sq ft. in size and the proposed artwork will be completed from the beginning of the wall all the way to the painted white square.

Proposed Artwork:

"Harmony in the Valley"

This awe-inspiring artwork celebrates the unique spirit of Moreno Valley, capturing its rich heritage, diverse community, and natural wonders.

As one approaches closer, intricate details come to life, revealing the deep cultural roots that make Moreno Valley so special. Bold patterns and colors intertwine with iconic historic symbols, conveying a sense of unity and reverence for the natural world.

This mural is a testament to the beauty and unity found within the diverse tapestry of Moreno Valley. It serves as an inspiration for residents and visitors alike, encouraging them to embrace the cities rich heritage, celebrate its cultural diversity, and foster a sense of harmony with the natural world.

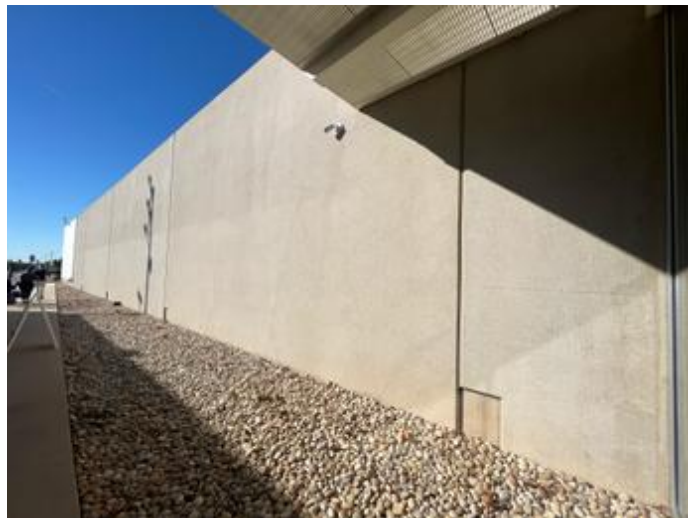
Proposed project location (include district and address):

District 1 - Conference and Recreation Center (14075 Frederick St, Moreno Valley, CA 92553)

Photo of proposed project location:



Attachment: Application_P.Barwinski (6462 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-PATRICK



Identify organizations and/or individuals you will be working with or collaborating with on this project:

Local artists and local art organizations such as @morenovalley.artz

Describe the goal/objective of your project:

The goal and objective of my project is the following:

- Beautify Moreno Valley
- Reflect the identity of Moreno Valley
- Foster a sense of inclusivity
- Encourage public art appreciation and awareness
- Engage with the community
- Long lasting impact

Beautify Moreno Valley:

To enhance the visual appeal of the Moreno Valley Recreation Center, we aim to create a mural that will serve as a focal point for the facility. This mural will contribute to a more inviting and aesthetically pleasing environment, thereby encouraging greater community use and engagement with the center.

Reflect the identity of Moreno Valley:

The mural will be designed to reflect the unique identity, culture, and natural beauty of Moreno Valley. It

should tell a visual story that resonates with residents, evoking a sense of pride and belonging to the city. This objective will ensure that the mural is a true representation of the community it serves.

Foster a sense of inclusivity:

I aim to create a mural that promotes a sense of inclusivity and unity among the diverse population of Moreno Valley. The design should celebrate the city's cultural diversity and serve as a unifying symbol for all residents, welcoming people from different backgrounds to the Recreation Center.

Encourage public art appreciation and awareness:

The mural project will also have an educational component. We intend to organize events, workshops, and guided tours that promote public art appreciation and awareness, helping residents and visitors understand the significance of public art and its role in building a vibrant community.

Engage with the community:

Community involvement is key to the success of this project. We will actively engage local artists, residents, and stakeholders in the creative process, from the selection of the mural design to its execution. By involving the community, we aim to foster a sense of ownership and pride in the final artwork.

Long lasting impact:

The objective is to create a mural that will stand the test of time. We will use high-quality materials and ensure proper maintenance to guarantee the mural's longevity. This will enable future generations to appreciate and enjoy the mural as an enduring symbol of Moreno Valley's culture and community.

By setting these goals and objectives, the purpose of the mural for the Moreno Valley Recreation Center becomes clear: it is not only a work of art but a tool for community engagement, identity expression, and cultural enrichment.

Will project include community outreach or engagement?
(ex. community or volunteer day, work shop, etc.)

If yes, please describe: Watch party involving community and other Moreno Valley local artists.

Has the City of Moreno Valley provided funding to you in the past?

Approximately how many people will participate or have the opportunity to view your project: 50000

Additional Information Regarding Your Project:

The limit for the opportunity to view my project is limitless as it is determined by the amount and type of events the Moreno Valley Conference and Recreation center hosts from now and in the future.

I believe the project has an opportunity to reach over 50k people or more throughout it's lifetime.

Attachment: Application_P.Barwinski (6462 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-PATRICK

Please Upload the Following Items Below:

Proposed project concepts / mock-up of design

Project Schedule – planning, prep, design, execution

Examples of previous artwork

Itemized Budget Allocation (if additional document is needed)

Resume/CV

References

Additional Supporting Materials – For example, portfolio, video files, articles, etc.

File Upload



PART 01.pdf



PART 02.pdf



PART 03.pdf



PART 04.pdf



PART 05.pdf



PART 06.pdf



PATRICK BARWINSKI ARTIST... .pdf



PATRICK BARWINSKI RESUME.pdf



PATRICK BARWINSKI SUPP... .docx

Terms and Conditions

Accepted

Waiver of Liability

The undersigned, by participating in the City of Moreno Valley Public Art Program ("Art Program"), hereby agrees to waive all rights to pursue any actions, claims or lawsuits against the City of Moreno Valley ("City") and all of its affiliated agencies, and their respective officials, agents, employees or volunteers (collectively, "City Parties"), irrespective of the nature of the injury, damage or liability, and release and hold harmless the City Parties from all claims, actions or lawsuits arising from or in connection with any injuries, death, liability, expenses, losses, claims, suits, actions, judgments, costs, or damages arising from or related to my participation in the Art Program.

I also hereby expressly waive any and all rights and benefits conferred upon me by the provisions of Section 1542 of the California Civil Code which reads as follows:

"A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."

Notwithstanding the provisions of Section 1542, and to implement a full and complete release as set forth, I acknowledge this waiver will be effective as a bar to any and all actions, fees, damages, losses, claims, liabilities and demands of whatsoever character, nature and kind known or unknown, or suspected or unsuspected. I further represent and warrant that I have read this Form, including this waiver provision, and, prior to executing this instrument, I have had an opportunity to consult an attorney about this instrument and specifically about this waiver provision.

Initials

By signing below, I acknowledge that I am authorized to sign this application. I have read and agree to abide by the City of Moreno Valley Public Art Program requirements and Waiver of Liability. I understand I will need to complete the following items if my project is approved: artist agreement, new vendor form, W-9, Moreno Valley business license, and provide a certificate of insurance. I understand that this application is subject to City and Art Commission review, approval, and denial.

signature

Date Signed

Thursday, November 9, 2023

Want to Submit in Person?

Please print this application and turn in supporting documents at the Conference & Recreation Center at 14075 Frederick St. Moreno Valley, CA 92553.

Attachment: Application_P.Barwinski (6462 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-PATRICK



Questions or comments?

Contact the Public Art team at Publicart@moval.org, visit Moval.org/parks, or call Claudia Torres at 951-413-3289

Attachment: Application_P.Barwinski (6462 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION-PATRICK

Proposed Project - Mock-up

Details



Attachment: Art Work_P.Barwinski (6462 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART

Itemized Budget - Cost Estimate

Details

Cost

Materials / Supplies

Paint, Brushes, Tape etc

\$10,000

Rentals

Scissor / Boom Lift / Scaffolds

\$8,000

H.4.c

Artist Fee

Prep, Design, Labor etc

\$36,000

Additional

Pressure Wash, Assistant etc

\$15,500

Total

\$69,500

Total Cost Estimate

\$69,500

H.4.c

Resources Spent Wisely

I guarantee that all and any resources used for completing mural project will be used on the highest quality of products to help secure the longevity of the mural as well as efficiency in the process of completion.



Report to City Council

TO:

FROM: Jeremy Bubnick, Parks & Community Services Director

AGENDA DATE: December 5, 2023

TITLE: REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –SHAYNE MITCHELL WESTBLUFF PARK RESTROOM MURAL

RECOMMENDED ACTION

Recommendations: That the City Council:

1. Receive and file the artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Shayne Mitchell for the creation and installation of a 560 square foot mural at the Westbluff Park Restroom; and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

SUMMARY

This report recommends that the Council review and consider approval of the Public Art Program Request for Funding Application submitted by Shayne Mitchell for the creation and installation of a 560 square foot mural to be located outside of Westbluff Park Restroom. The amount of funding being requested by the applicant is \$14,700.

If approved, Parks & Community Services staff will work with the selected applicant to enter into a Professional Services Agreement to complete the proposed project.

The Public Art Program will utilize funding from Development Impact Fees (DIF)-Public Art Fund 2916.

DISCUSSION

On June 20, 2023, the City Council approved the City of Moreno Valley’s Public Art Policy which includes guidelines regarding submittal process, selection criteria, installation, deinstallation, and agreements as it relates to the Public Art Program. It further considers the role of the Arts Commission and calls for City Council to make the final decision on all public art on City of Moreno Valley property.

Per the approved Public Art Policy, “Public Art” is defined as artistic works created by artists as unique and original works located in a public space or facility and accessible to the public. Public Art includes works of a permanent or temporary nature. “Public Art” can be in the form of exhibit, performance, installation, integration of art and architecture, and a unique physical environment or feature that integrates art in the city. Eligible mediums include but are not limited to painting, mural, drawing, sculpture, photography, landscaping, water feature, components of a building, works of sound and/or light, and spoken word. Mass produced or standardized art, mechanical reproductions, or directional signage are not eligible mediums.

During a Special Meeting held on November 15, 2023, the Arts Commission approved the subject application to be forwarded to the City Council for review and final funding consideration.

ALTERNATIVES

- 1. Provide approval of Public Art Program Request for Funding Application for Shayne Mitchell in the amount of \$14,700; or
- 2. Do not approve the Public Art Program Request for Funding Application; or
- 3. Provide Staff with alternate direction.

FISCAL IMPACT

Funding for the Public Art Program is available through DIF Public Art Fund 2916. If approved, a budget adjustment would be requested as outlined below:

Description	Fund	GL Account No.	Type (Rev/Exp)	FY 23/24 Budget	Proposed Adjustments	FY 23/24 Amended Budget
Transfer to (Other Funds)	2916 DIF Public Art	2916-99-95-92916-900001	Rev	\$0	\$14,700	\$14,700
Transfer in -from DIF Public Art	XXXX- *New Fund	xxxx-xx-xx-xxxxx-80xxxx	Rev	\$0	\$14,700	\$14,700
Contractual Svcs- Other	XXXX- *New Fund	xxxx-xx-xx-xxxxx-625099	Exp	\$0	\$14,700	\$14,700

NOTIFICATION

Posting of Agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Patty Yhuit
PCS Admin & Fin Services Division Manager

Department Head Approval:
Jeremy Bubnick
Parks & Community Services Director

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

- 1. Economic Development
- 2. Public Safety
- 3. Library
- 4. Infrastructure
- 5. Beautification, Community Engagement, and Quality of Life
- 6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

- 1. Application_S.Mitchell
- 2. ArtWork_S.Mitchell
- 3. Budget_S.Mitchell

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/28/23 5:12 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/28/23 5:22 PM

Wednesday, November 8, 2023



Public Art Application

The City Council continues to support community identity by encouraging development and display of public art to promote the history, heritage, culture, and contemporary identity of Moreno Valley. The goal of the Moreno Valley Public Art program is to offer an opportunity for local artists and business owners to create a distinctive sense of place and pride in Moreno Valley city facilities, parks, utility boxes, streets, and open spaces.

Requirement Checklist (do not move forward with the application until all applicable items are available to upload)

Proposed project concepts / mock-up of design

Project Schedule – planning, prep, design, execution

Examples of previous artwork

Itemized Budget Allocation (if additional document is needed)

Resume/CV

References

Artist Information

Full Name Shayne Mitchell

Are you a resident of the City of Moreno Valley

E-mail zenmastahh@gmail.com

Phone Number (760) 524-6035

Address 300 s Thomas st, suite 202
pomona, CA, 92392
United States

Briefly describe your experience as an artist or involvement in public art projects:

Ever since I graduated with my bachelors in art at Cal State San Bernardino in 2018, My partner and I have been full time artists ever since. We have successfully completed indoor and outdoor murals all throughout California. We first started making interior murals for restaurants where we would paint large scale artworks wrapping around the entire establishment. A few notable murals we have done are in Rancho Cucamonga in a food hall called Haven City Market, where we painted the walls and ceiling of an entire hallway leading to the restrooms. By utilizing color and perspective we were able to achieve a high quality of interactiveness and picturesque imagery that enhanced the establishment's popularity. I have also completed a few outdoor murals that are located in parks around the city of Pomona. For these murals I took a similar approach to my proposed project by focusing on nature and how it naturally flows

Attachment: Application_S.Mitchell (6463 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –SHAYNE

and adapts, which I illustrated through abstract forms and color transitions. All of these projects were completed within the agreed upon times and contributed to the local wellbeing, considering all the valuable interactions that I gratefully encountered.

Social Pages

Instagram: @shaynes.art

Project Details

Will you be requesting monetary funds? Yes

If you responded yes to the above, what is the amount requested? 15200

Project type (check all that apply) Mural

Provide a brief itemized list of your budget allocation:

Budget Allocation Expenditure List
Restroom Building Beautification project for Westbluff Park

Artist Fee
\$25 per square foot. Building measures to 560sq ft.
\$14,000

Transportation
This covers the cost of gas for transportation to project location and back home, as well as trips to get project materials.
\$200

Administrative Overhead
This covers the cost of insurance and other document fees mandatory to work on this project. This also covers the cost to compensate for any overhead watch deemed necessary for security purposes.
\$300

Supplies & Materials
This covers the cost of all materials and supplies purchased for this project as well as food purchased during the hours of production of project. (1 case of water based spray paints=\$34.39)
\$700

Requested amount Grand Total: \$15,200

Project description:

I am proposing a mural at Westbluff Park, wrapping around the restroom building. The artwork will be primarily abstract, reflecting my previous work. I take pride in this work being abstract, consisting of pure color and form, because it holds the ability to be enjoyed by everyone, everywhere, not being constricted by gender, nationality, or beliefs, through representational content. By keeping my work abstract, it penetrates into people's subjective lives and allows them to relate to it in their own unique way. That said, I also always consider the location of my artwork and its surroundings, which is why I decided to include one of Moreno Valley's most iconic elements into this mural, the beautiful mountains and the famous giant M that so many have ventured out to see up close. These mountains will be in the foreground, while the

Attachment: Application_S.Mitchell (6463 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION -SHAYNE

background will be made up of transitional colors and forms which reflect the park surroundings. The organic forms of gradient colors that are woven throughout the artwork act as the binding force that maintains the flow of the final mural. I will be creating this mural in layers of water based spray paint that is a fairly new and healthier alternative to aerosol spray paint, which is not good for the environment. The more this water based spray paint gets used the more it replaces the not so ethical sprays out there.

Proposed project location (include district and address):

10750 Pigeon Pass Rd, Moreno Valley, CA, 92557 DISTRICT 2

Photo of proposed project location:



Describe the goal/objective of your project:

My main goal for this project is to be an acting part of beautifying Moreno Valley to reflect the unseen beauties that are usually hidden inside people. Generally buildings are drab and are overly angular and rigid. Adding some natural curves and color into buildings will help progress infrastructure into a more futuristic and ideal form of creation that will be more balanced with practicality and aesthetically pleasing. Art can be a driving force that unites and reconnects people with nature and beauty that can improve well being and I strive to spread these positive effects in Moreno Valley. I also hope to encourage younger generations and older generations to explore art and creativity and reap the benefits of being creative. I will make sure to share my process and any knowledge to anyone interested in the mural during its making, being an inviting hand into the wonders of art.

Will project include community outreach or engagement? (ex. community or volunteer day, work shop, etc.)

No

Has the City of Moreno Valley provided funding to you in the past?

No

Attachment: Application_S.Mitchell (6463 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION -SHAYNE

Approximately how many people will participate or have the opportunity to view your project: 100

Please Upload the Following Items Below:

Proposed project concepts / mock-up of design

Project Schedule – planning, prep, design, execution

Examples of previous artwork

Itemized Budget Allocation (if additional document is needed)

Resume/CV

References

File Upload



Budget for Westbluff Park.pdf



REFERENCES.pdf



Shayne Resume -2.pdf



Shayne pastpublicworks2023....pdf



project schedule for Westbluf....pdf

Terms and Conditions

Accepted

Attachment: Application_S.Mitchell (6463 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –SHAYNE

Waiver of Liability

The undersigned, by participating in the City of Moreno Valley Public Art Program ("Art Program"), hereby agrees to waive all rights to pursue any actions, claims or lawsuits against the City of Moreno Valley ("City") and all of its affiliated agencies, and their respective officials, agents, employees or volunteers (collectively, "City Parties"), irrespective of the nature of the injury, damage or liability, and release and hold harmless the City Parties from all claims, actions or lawsuits arising from or in connection with any injuries, death, liability, expenses, losses, claims, suits, actions, judgments, costs, or damages arising from or related to my participation in the Art Program.

I also hereby expressly waive any and all rights and benefits conferred upon me by the provisions of Section 1542 of the California Civil Code which reads as follows:

"A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."

Notwithstanding the provisions of Section 1542, and to implement a full and complete release as set forth, I acknowledge this waiver will be effective as a bar to any and all actions, fees, damages, losses, claims, liabilities and demands of whatsoever character, nature and kind known or unknown, or suspected or unsuspected. I further represent and warrant that I have read this Form, including this waiver provision, and, prior to executing this instrument, I have had an opportunity to consult an attorney about this instrument and specifically about this waiver provision.

Initials



By signing below, I acknowledge that I am authorized to sign this application. I have read and agree to abide by the City of Moreno Valley Public Art Program requirements and Waiver of Liability. I understand I will need to complete the following items if my project is approved: artist agreement, new vendor form, W-9, Moreno Valley business license, and provide a certificate of insurance. I understand that this application is subject to City and Art Commission review, approval, and denial.



Date Signed

Wednesday, November 8, 2023

Want to Submit in Person?

Please print this application and turn in supporting documents at the Conference & Recreation Center at 14075 Frederick St. Moreno Valley, CA 92553.

Attachment: Application_S.Mitchell (6463 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION -SHAYNE

Questions or comments?

Contact the Public Art team at Publicart@moval.org, visit Moval.org/parks, or call Claudia Torres at 951-413-3289

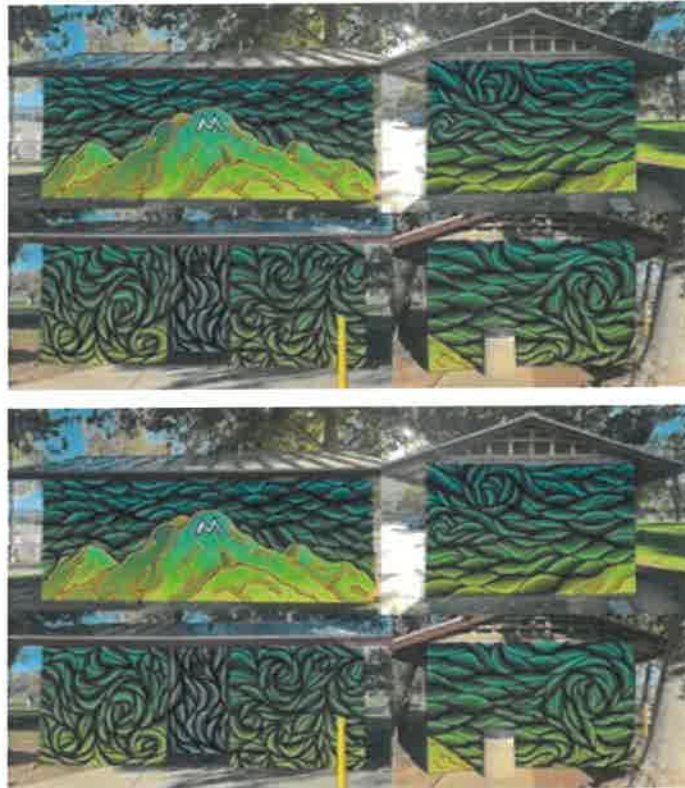
Attachment: Application_S.Mitchell (6463 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION -SHAYNE

background will be made up of transitional colors and forms which reflect the park surroundings. The organic forms of gradient colors that are woven throughout the artwork act as the binding force that maintains the flow of the final mural. I will be creating this mural in layers of water based spray paint that is a fairly new and healthier alternative to aerosol spray paint, which is not good for the environment. The more this water based spray paint gets used the more it replaces the not so ethical sprays out there.

Proposed project location (include district and address):

10750 Pigeon Pass Rd, Moreno Valley, CA, 92557 DISTRICT 2

Photo of proposed project location:



Describe the goal/objective of your project:

My main goal for this project is to be an acting part of beautifying Moreno Valley to reflect the unseen beauties that are usually hidden inside people. Generally buildings are drab and are overly angular and rigid. Adding some natural curves and color into buildings will help progress infrastructure into a more futuristic and ideal form of creation that will be more balanced with practicality and aesthetically pleasing. Art can be a driving force that unites and reconnects people with nature and beauty that can improve well being and I strive to spread these positive effects in Moreno Valley. I also hope to encourage younger generations and older generations to explore art and creativity and reap the benefits of being creative. I will make sure to share my process and any knowledge to anyone interested in the mural during its making, being an inviting hand into the wonders of art.

Will project include community outreach or engagement?
(ex. community or volunteer day, work shop, etc.)

No

Has the City of Moreno Valley provided funding to you in the past?

No

Attachment: ArtWork_S.Mitchell (6463 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION

Budget Allocation Expenditure List

Artist: Shayne Mitchell

Restroom Building Beautification Project for Westbluff Park

Line Item	Description	Amount	Amount Requested
Artist Fee	\$25 per square foot. Building measures to 560sq ft.	\$14,000	\$14,000
Supplies & Materials	This covers the cost of all materials and supplies purchased for this project as well as food purchased during the hours of production of project. (1 case of water based spray paints=\$34.39)	\$700	\$700
		Requested amount: \$14,700	Requested amount Grand Total: \$14,700

Attachment: Budget_S.Mitchell (6463 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION



Report to City Council

TO:

FROM: Jeremy Bubnick, Parks & Community Services Director

AGENDA DATE: December 5, 2023

TITLE: REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM CROGMAN FOR UTILITY BOX WRAPS AT FOUR INTERSECTIONS

RECOMMENDED ACTION

Recommendations: That the City Council:

1. Receive and file the artist presentation; and
2. Review and consider approval of Public Art Request for Funding Application from Maryam Crogman for the installation of utility box wraps at four intersection utility boxes at Eucalyptus & Heacock; Perris & Cottonwood; Alessandro Plaza & Alessandro; Perris & Alessandro; and
3. Authorize Executive Director and or its designee to enter into an agreement for services with the approved applicant and submit a budget adjustment request to utilize funding from DIF Public Art Fund 2916.

SUMMARY

This report recommends that the Council review and consider approval of the Public Art Program Request for Funding Application submitted by Maryam Crogman for the installation of four utility box wraps at four intersection utility boxes located on Eucalyptus & Heacock; Perris & Cottonwood; Alessandro Plaza & Alessandro; Perris & Alessandro. The amount of funding being requested by the applicant is \$2,400.

If approved, Parks & Community Services staff will work with the selected applicant to enter into a Professional Services Agreement to complete the proposed project.

The Public Art Program will utilize funding from Development Impact Fees (DIF)-Public

Art Fund 2916.

DISCUSSION

On June 20, 2023, the City Council approved the City of Moreno Valley’s Public Art Policy which includes guidelines regarding submittal process, selection criteria, installation, deinstallation, and agreements as it relates to the Public Art Program. It further considers the role of the Arts Commission and calls for City Council to make the final decision on all public art on City of Moreno Valley property.

Per the approved Public Art Policy, “Public Art” is defined as artistic works created by artists as unique and original works located in a public space or facility and accessible to the public. Public Art includes works of a permanent or temporary nature. “Public Art” can be in the form of exhibit, performance, installation, integration of art and architecture, and a unique physical environment or feature that integrates art in the city. Eligible mediums include but are not limited to painting, mural, drawing, sculpture, photography, landscaping, water feature, components of a building, works of sound and/or light, and spoken word. Mass produced or standardized art, mechanical reproductions, or directional signage are not eligible mediums.

During a Special Meeting held on November 15, 2023, the Arts Commission approved the subject application to be forwarded to the City Council for review and final funding consideration.

ALTERNATIVES

1. Provide approval of Public Art Program Request for Funding Application for Maryam Crogman in the amount of \$2,400; or
2. Do not approve the Public Art Program Request for Funding Application; or
3. Provide Staff with alternate direction.

FISCAL IMPACT

Funding for the Public Art Program is available through DIF Public Art Fund 2916. If approved, a budget adjustment would be requested as outlined below:

Description	Fund	GL Account No.	Type (Rev/Exp)	FY 23/24 Budget	Proposed Adjustments	FY 23/24 Amended Budget
Transfer to (Other Funds)	2916 DIF Public Art	2916-99-95-92916-900001	Rev	\$0	\$2,400	\$2,400
Transfer in -from DIF Public Art	XXXX-*New Fund	xxxx-xx-xx-xxxxx-80xxxx	Rev	\$0	\$2,400	\$2,400
Contractual Svcs-Other	XXXX-*New Fund	xxxx-xx-xx-xxxxx-625099	Exp	\$0	\$2,400	\$2,400

NOTIFICATION

Posting of Agenda.

PREPARATION OF STAFF REPORT

Prepared By:
Patty Yhuit
PCS Admin & Fin Services Division Manager

Department Head Approval:
Jeremy Bubnick
Parks & Community Services Director

CITY COUNCIL GOALS

Advocacy. Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies and corporations.

Positive Environment. Create a positive environment for the development of Moreno Valley's future.

Community Image, Neighborhood Pride and Cleanliness. Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

CITY COUNCIL STRATEGIC PRIORITIES

1. Economic Development
2. Public Safety
3. Library
4. Infrastructure
5. Beautification, Community Engagement, and Quality of Life
6. Youth Programs

ATTACHMENTS

To view large attachments, please click your “bookmarks”  on the left hand side of this document for the necessary attachment.

1. Application_M.Crogman
2. Art Work_M.Crogman
3. Budget_M.Crogman

APPROVALS

Budget Officer Approval	<u>✓ Approved</u>	11/28/23 5:14 PM
City Attorney Approval	<u>✓ Approved</u>	
City Manager Approval	<u>✓ Approved</u>	11/28/23 5:21 PM

Thursday, November 9, 2023



Public Art Application

The City Council continues to support community identity by encouraging development and display of public art to promote the history, heritage, culture, and contemporary identity of Moreno Valley. The goal of the Moreno Valley Public Art program is to offer an opportunity for local artists and business owners to create a distinctive sense of place and pride in Moreno Valley city facilities, parks, utility boxes, streets, and open spaces.

Requirement Checklist (do not move forward with the application until all applicable items are available to upload)

- Proposed project concepts / mock-up of design
- Project Schedule – planning, prep, design, execution
- Examples of previous artwork
- Itemized Budget Allocation (if additional document is needed)
- Resume/CV
- References
- Additional Supporting Materials – For example, portfolio, video files, articles, etc.

Artist Information

Full Name Maryam Crogman

Are you a resident of the City of Moreno Valley No

Company Name L'Expression Creative Studios Inc.

Business Tax ID Number L'Expression Creative Studios Inc.

Contact Person Title Director / Owner

E-mail lxpression39@gmail.com

Phone Number (951) 505-2408

Address 4922 Arlington Ave.
Riverside, CA, 92504
United States

Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM

Briefly describe your experience as an artist or involvement in public art projects:

I am an eclectic artist, community organizer, entrepreneur, author and educator (see resume for details). One of my favorite activities in the past few years has been to organize community murals events, and to create projects that uphold community pride, belonging and history. As an educator I'm particularly interested in murals that speak to the youth. Having the city decorated in positive images and words can make a big difference in the sense of belonging and projection toward a positive future in the life of a young person. Having youth take part in the murals when possible is a great privilege. My major themes are diversity, education, culture and positive motivational messaging. In the last 3 years I have dedicated more time in creating street artwork for the community (see images), one of my mid-term objective is to be called to create murals in schools and school neighborhoods. In 2021 created L'Expression Creative Studios in Riverside, and recently opened a space in Moreno Valley, to allow youth and adults to come create images that represent them, learn art techniques, the place of culture in the arts, and destress in a motivating and fun environment. I'd like my company to be involved in the expansion of art in the community of Moreno Valley. Personally, I create series that represent the common people. I use strong symbols such as chains to talk about the issues that hinder people's growth and well-being. I use larger formats acrylic, oil pastel and simple lines.

Social Pages

Website: www.lxpstudios.com www.almatreb.com
Instagram: @lxp_studios and @almatreb
Facebook: <https://www.facebook.com/LXPstudios>

Project Details

Will you be requesting monetary funds? Yes

Project type (check all that apply) Utility Box

Provide a brief itemized list of your budget allocation:

Vinyl wrap

TOTAL: \$700 each

- * Flat fee 72h of design labor \$600
- * 2 potential 1h long review meetings with concerned parties and local community

Any additional meetings will incur a charge of \$50/h of work

A deposit of 25% of the total charge is requested prior to project start.

Project description:

- * To contribute to the Moreno Valley pride, accomplishment and ownership of its young residents and their families
- * To give Moreno Valley youth positive and affirming images on their paths to school, and life activities.

L'Expression creative Studios (LXP) recognizes the importance of helping our youth develop and establish themselves in our community, for they are the leaders that will run our city and take care of our community of tomorrow. Giving them a sense of belonging is part of the small but frequent avenues and opportunities

Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM

we should be providing them for their growth and well-being. LXP has dedicated the next decade to providing local communities and their youth opportunities to develop a sense of belonging and accomplishment in their contribution to beautifying their community, as well as getting daily motivation from the messages that will be displayed.

We have started a series of art proposals that will encompass murals, utility boxes, crosswalk and more. We hope that the community will participate in future design and execution of these pieces.

Our work displays positive and motivational sidewalk messages as youth and their families travel the city daily. This is an ongoing proposal for utility boxes, we continue to study the neighborhood and project images and messages corresponding to the culture and activities surrounding.

We created a city-wide game concept in which each art piece contains a shout out to the city "Moreno Valley Cares, Moreno Valley Moves, Moreno Valley reads.../...". We will invite visitors, tourists and youth to find the messages in scavenger hunts and the like during city-wide celebrations. It also creates a sense of messaging continuity across the community.

Proposed project location (include district and address):

Crossstreets: Eucalyptus & heacock, Perris & Cottonwood, Alessandro Piazza and Alessandro, Perris & Alessandro

Photo of proposed project location:



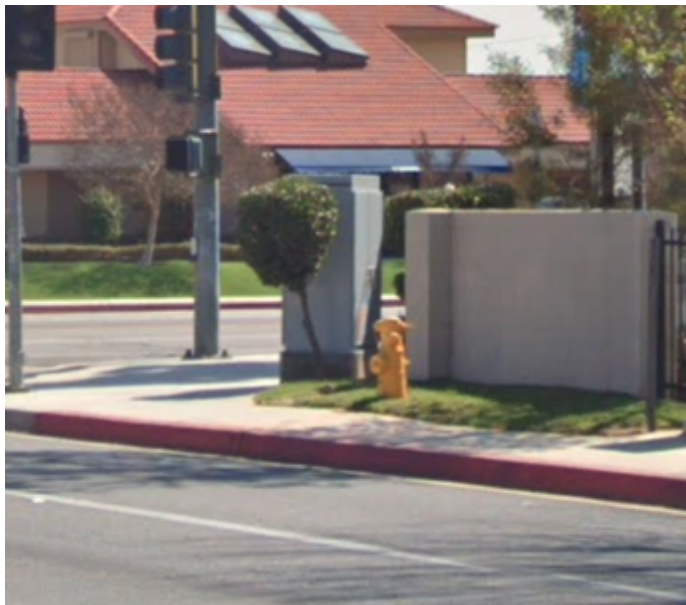
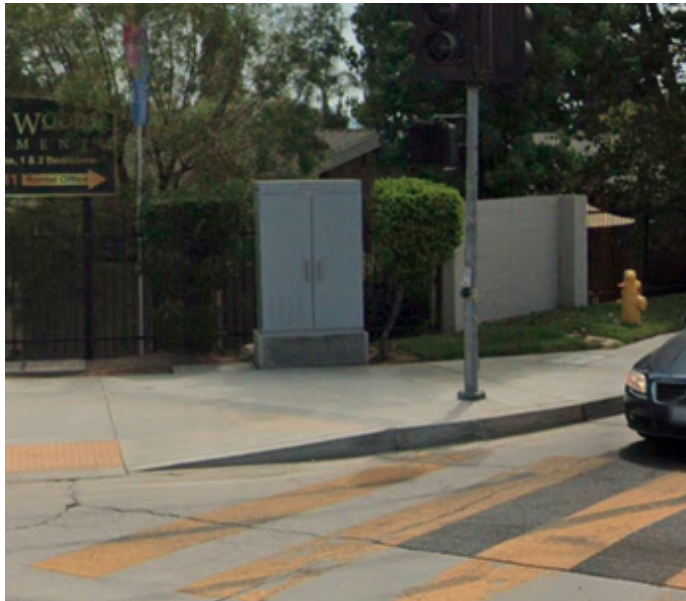
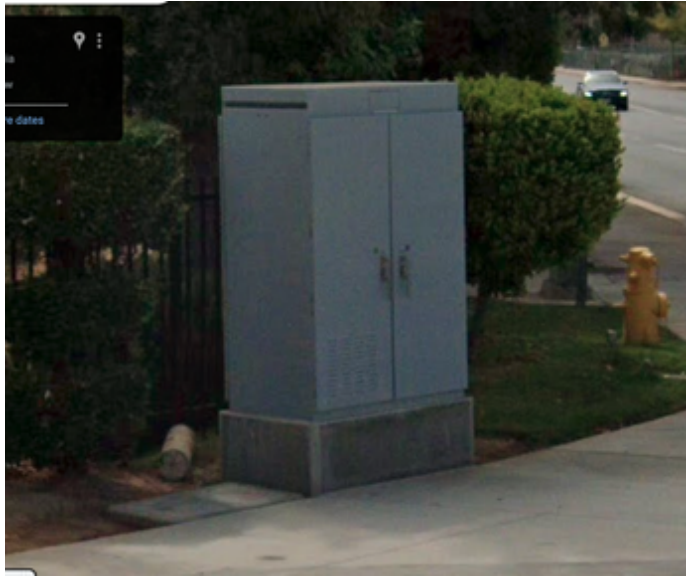
Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM



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Identify organizations and/or individuals you will be working with or collaborating with on this project:

L'Expression creative Studios staff and team of artists, local community and city staff and committees

Describe the goal/objective of your project:

- * Beautifying the city
- * Giving a sense of fun, ownership, contribution, accomplishment
- * Creating city-wide games
- * Fostering positive messages and images at busy intersections
- * Promoting art and the use of art for city and community development & well being
- * Targeting youth and their self image - future projections
- * Create constructive projects for youth

Will project include community outreach or engagement? (ex. community or volunteer day, work shop, etc.)

Yes

If yes, please describe:

On the long term, we plan on involving youth in the design and execution of the art pieces. For now, as we explore this first round of projects, we simply studied the neighborhoods, their history and chose messages corresponding. It is our hope to work with city officials and youth to develop opportunities for collaboration in building the city artscape.

Has the City of Moreno Valley provided funding to you in the past?

No

Approximately how many people will participate or have the opportunity to view your project:

250000

Additional Information Regarding Your Project:

Will we be invited to the placement of the vinyl wraps?
We'd love to be there.

Please Upload the Following Items Below:

Proposed project concepts / mock-up of design

Project Schedule – planning, prep, design, execution

Examples of previous artwork

Itemized Budget Allocation (if additional document is needed)

Resume/CV

References

Additional Supporting Materials – For example, portfolio, video files, articles, etc.

File Upload



Art detail



Art detail w/ model box



Art detail w/ model box

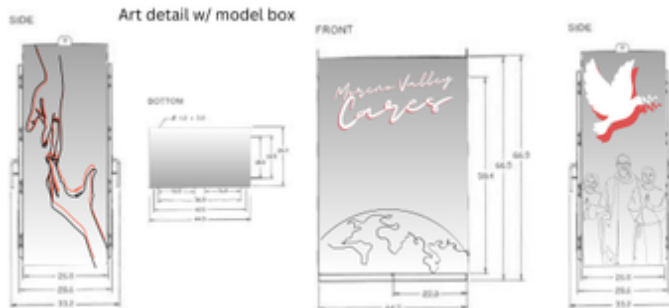
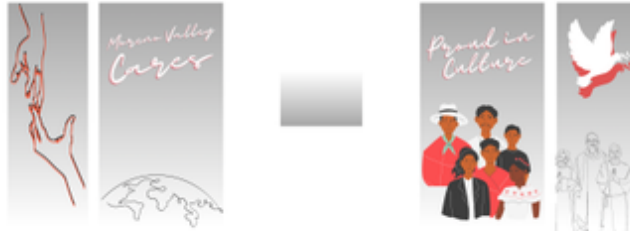


Art detail





Art detail











Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM



Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM



-  Artist Letter of Recommenda... .pdf
-  FPR Recommendation.pdf
-  Mcrogman CV 2023 ART.pdf
-  MoVal art grant Maryam Cro... .pdf
-  Moreno Valley Arts - Utility B... .pdf
-  PRESS PAGE & Interviews.pdf

Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION -MARYAM

Prev. Artwork_Maryam Exhibit.pdf

Prev. Artwork_Maryam The Ri....pdf

Terms and Conditions

Accepted

Waiver of Liability

The undersigned, by participating in the City of Moreno Valley Public Art Program ("Art Program"), hereby agrees to waive all rights to pursue any actions, claims or lawsuits against the City of Moreno Valley ("City") and all of its affiliated agencies, and their respective officials, agents, employees or volunteers (collectively, "City Parties"), irrespective of the nature of the injury, damage or liability, and release and hold harmless the City Parties from all claims, actions or lawsuits arising from or in connection with any injuries, death, liability, expenses, losses, claims, suits, actions, judgments, costs, or damages arising from or related to my participation in the Art Program.

I also hereby expressly waive any and all rights and benefits conferred upon me by the provisions of Section 1542 of the California Civil Code which reads as follows:

"A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."

Notwithstanding the provisions of Section 1542, and to implement a full and complete release as set forth, I acknowledge this waiver will be effective as a bar to any and all actions, fees, damages, losses, claims, liabilities and demands of whatsoever character, nature and kind known or unknown, or suspected or unsuspected. I further represent and warrant that I have read this Form, including this waiver provision, and, prior to executing this instrument, I have had an opportunity to consult an attorney about this instrument and specifically about this waiver provision.

Initials

Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM



By signing below, I acknowledge that I am authorized to sign this application. I have read and agree to abide by the City of Moreno Valley Public Art Program requirements and Waiver of Liability. I understand I will need to complete the following items if my project is approved: artist agreement, new vendor form, W-9, Moreno Valley business license, and provide a certificate of insurance. I understand that this application is subject to City and Art Commission review, approval, and denial.

Date Signed

Thursday, November 9, 2023

Want to Submit in Person?

Please print this application and turn in supporting documents at the Conference & Recreation Center at 14075 Frederick St. Moreno Valley, CA 92553.


Questions or comments?

Contact the Public Art team at Publicart@moval.org, visit Moval.org/parks, or call Claudia Torres at 951-413-3289

Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM

TITLE	Public Art Application
DOCUMENT ID	233122588040045
DOCUMENT PAGES	16
STATUS	COMPLETED
TIME ZONE	America/Los Angeles

DOCUMENT HISTORY

 Signed	Nov 09, 2023 01:58 AM	Signed by () IP: 172.117.86.73
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Attachment: Application_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION

Art detail



Art detail w/ model box



Art detail w/ model box



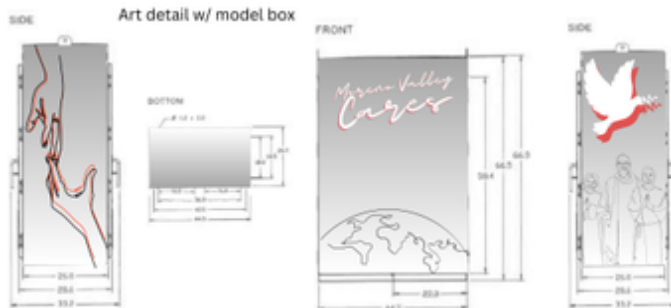
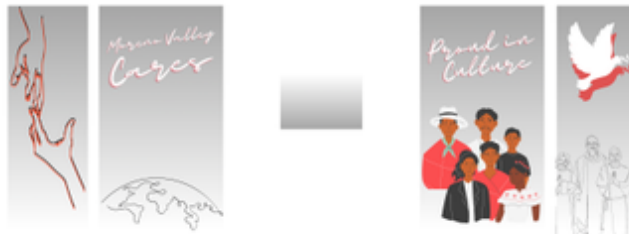
Art detail



Attachment: Art Work_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION –MARYAM



Art detail



2023 MoVal Arts Budget

Item	Details	Price
Vinyl Wrap Alessandro Piazza	Research & Design	\$600
Vinyl Wrap Perris & Cottonwood	Research & Design	\$600
Vinyl Wrap Eucalyptus & Sunnymead	Research & Design	\$600
Vinyl Wrap Perris & Alessandro	Research & Design	\$600
TOTAL		\$2400

Attachment: Budget_M.Crogman (6464 : REVIEW AND CONSIDER APPROVAL OF PUBLIC ART REQUEST FOR FUNDING APPLICATION